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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

BULLETIN 573

RESULTS OF SPIRIT LEVELING IN ARIZONA

1899 TO 1915, INCLUSIVE

R. B. MARSHALL, CHIEF GEOGRAPHER

WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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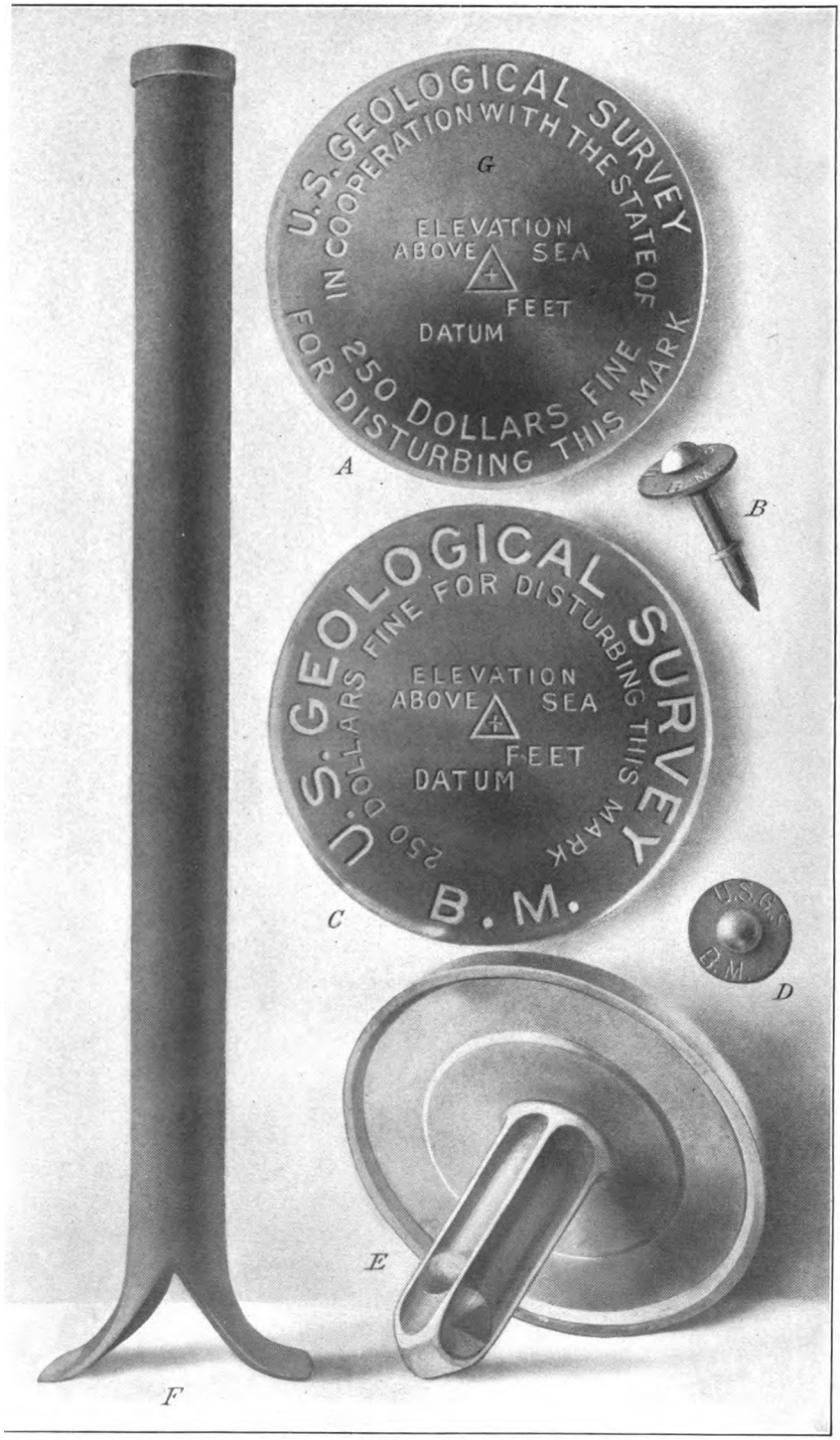

GEOLOGICAL SURVEY BENCH MARKS.

A, Tablet used in cooperating States. The State name is inserted at *G*.
B and *D*, Copper temporary bench mark, consisting of a nail and copper washer.
A, *C*, and *E*, Tablets for stone or concrete structures.
F, Iron post used where there is no rock.

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RESULTS OF SPIRIT LEVELING IN ARIZONA, 1899 TO 1915, INCLUSIVE.

R. B. MARSHALL, Chief Geographer.

INTRODUCTION.

Previous publication.—All results of spirit leveling in Arizona previously published by the United States Geological Survey in Bulletin 463 and all the results of later work are included in this report. The elevations are now based on heights of bench marks along the precise-level line of the United States Coast and Geodetic Survey from San Diego, Cal., via Mellen and Flagstaff, Ariz., to Albuquerque, N. Mex., as adjusted by the Coast and Geodetic Survey in 1912, and on the precise line of the Geological Survey between Yuma, Ariz., and the Arizona-New Mexico line.

Personnel.—The field work previous to 1903 was done under the general direction of R. U. Goode, geographer; that for 1903 to 1906, inclusive, under E. M. Douglas, geographer; that for 1907 under R. B. Marshall, geographer; and the later work under T. G. Gerdine and G. R. Davis, geographers, under the general direction of R. B. Marshall, chief geographer. The names of the respective levelmen are given in the introductions to the several lists. The office work of computation, adjustment, and preparation of lists was done mainly by S. S. Gannett, geographer, under the general direction of E. M. Douglas, geographer.

Classification.—The elevations are classified as precise or primary, according to the methods employed in their determination. For precise-level lines instruments and rods of the highest grade are used, each line is run both forward and backward, and every precaution is taken to guard against error. The allowable divergence between the forward and the backward lines in feet is represented by the formula $0.017\sqrt{D}$, in which D is the distance in miles between bench marks. For primary lines standard Y levels are used; lines are run in circuits or are closed on precise lines, with an allowable closing error in feet represented by $0.05\sqrt{D}$, in which D is the length of the circuit in miles, sufficient care being given to the work to maintain this standard. For levels of both classes careful office adjustments are made, the small outstanding errors being distributed over the lines.

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Bench marks.—The standard bench marks are of two forms. The first form is a circular bronze or aluminum tablet (*C* and *E*, Pl. I), 3½ inches in diameter and one-quarter inch thick, having a 3-inch stem, which is cemented in a drill hole in solid rock in the wall of some public building, a bridge abutment, or other substantial masonry structure. The second form (*F*, Pl. I), used where masonry or rock is not available, consists of a hollow wrought-iron post 3½ inches in outer diameter and 4 feet in length, which is set about 3 feet in the ground. The bottom is spread out to a width of 10 inches in order to give a firm bearing on the earth. A bronze or aluminum-bronze cap is riveted upon the top of the post. A third style of bench mark with abbreviated lettering (*B* and *D*, Pl. I) is used for unimportant points. This consists of a special copper nail 1½ inches in length driven through a copper washer seven-eighths inch in diameter. The tablets as well as the caps on the iron posts are appropriately lettered, and where States have cooperated in the work the fact of such cooperation is indicated by the addition of the State name (*G*, Pl. I.).

The numbers stamped on the bench marks described in the following pages represent the elevations to the nearest foot as determined by the levelman. These numbers are stamped with $\frac{3}{16}$-inch steel dies on the tablets or post caps to the left of the word "feet." The office adjustment of the notes and the reduction to mean sea-level datum may so change some of the figures that the original markings are 1 or 2 feet in error. It is assumed that engineers and others who have occasion to use the bench-mark elevations will apply to the Director of the United States Geological Survey, at Washington, D. C., for the adjusted values, and will use the markings as identification numbers only.

Datum.—All United States Geological Survey elevations are referred to mean sea level, which is the level that the sea would assume if the influence of winds and tides were eliminated. This level is not the elevation determined from the mean of the highest and the lowest tides, nor is it the half sum of the mean of all the high tides and the mean of all the low tides, which is called the half-tide level. *Mean sea level is the average height of the water, all stages of the tide being considered.* It is determined from observations made by means of tidal gages placed at stations where local conditions, such as long, narrow bays, rivers, and like features, will not affect the height of the water. To obtain even approximately correct results these observations must extend over at least one lunar month, and if accuracy is desired they must extend over several years. At ocean stations the half-tide level and the mean sea level usually differ but little. It is assumed that there is no difference between the mean sea levels determined from observations in the Atlantic Ocean, the Gulf of Mexico, and the Pacific Ocean.

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The connection with tidal stations for bench marks in certain areas that lie at some distance from the seacoast is still uncertain, and this fact is indicated by the addition of a letter or word to the right of the word "Datum" on tablets or posts. For such areas corrections for published results will be made from time to time as the precise-level lines of the United States Geological Survey or other Government organizations are extended.

Topographic maps.—Maps of the following quadrangles wholly or partly in Arizona have been published by the United States Geological Survey up to July 1, 1915. They may be obtained (except as noted) for 10 cents each or $3 for 50, on application to the Director of the Survey at Washington, D. C.

Bisbee.
Bisbee special.
Bradshaw Mountains.[1]
Bright Angel [2] (20 cents).
Camelsback.
Camp Mohave (Ariz.-Nev.-Cal.).
Canyon de Chelly (Ariz.-N. Mex.).
Chino.
Clifton.
Congress.[1]
Desert Well.
Diamond Creek.
Echo Cliffs.[3]
Flagstaff.
Florence.
Fort Defiance (Ariz.-N. Mex.).
Fort McDowell.
Globe.
Globe special.
Holbrook.
Jerome.[1]
Kaibab.[2]
Marsh Pass.
Morenci.
Mount Trumbull.
Needles special (Ariz.-Cal.).
Nogales.
Patagonia.
Petrified Forest.
Prescott.[1]
Ray.
Roosevelt.
Sacaton.
St. Johns (Ariz.-N. Mex.).
St. Thomas (Nev.-Ariz.).
San Francisco Mountain.
Shinumo (20 cents).
Tombstone mining (20 cents).
Tombstone special.
Tucson.
Tusayan.
Verde.
Vishnu [3] (20 cents).
Winkelman.
Yuma (Cal.-Ariz.).

PRECISE LEVELING.

Benson, Casa Grande, Cochise, Dragoon, Gila Bend, Heaton, Langhorne, Mohawk Station, Patagonia, Red Rock, San Simon, Sentinel, Tucson, Wellton, and Yuma quadrangles.

COCHISE, MARICOPA, PIMA, PINAL, AND YUMA COUNTIES.

The following elevations are the unadjusted results of a precise-level line run eastward along the Southern Pacific R. R. from Yuma to Tucson by M. S. Bright in 1905, and from the New Mexico line near San Simon to Tucson by W. A. E. Hult and T. A. Green in 1907.

[1] Bradshaw Mountains, Congress, and Jerome sheets show parts of Prescott quadrangle on a larger scale.
[2] Bright Angel and Shinumo sheets show parts of Kaibab quadrangle on a larger scale.
[3] Vishnu sheet shows part of Echo Cliffs quadrangle on a larger scale.

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YUMA QUADRANGLE.

[Latitude 32° 30′–33°; longitude 114° 30′–115°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

	Feet.
Yuma, in east end of second pier of railroad bridge; aluminum tablet stamped "137 S. B."	138.100
Yuma, in front of station; top of east rail	141.86
Yuma Heights, in front of station; top of west rail	197.5
Ivalon, in front of station; top of south rail	214.0
Ivalon, 15 feet south of switch stand; top of vertical rail 340	212.19
Ivalon, north of track, 4 feet north of signboard; iron post	212.253
Milepost 736, 400 feet east of, 4 feet south of track; top of vertical rail 420	217.14
Araby, in front of station; top of south rail	214.71

WELLTON QUADRANGLE.

[Latitude 32° 30′–33°; longitude 114°–114° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Milepost 740, 3 feet north of, south of track; iron post stamped "213 Y"	213.866
Blaisdell, 1.5 miles west of, 75 feet north of track, west of road; iron post	227.867
Blaisdell, at southeast corner of station; iron post stamped "188 Y"	188.904
Blaisdell, in front of station; top of rail	188.0
Milepost 748, 50 feet north of, south of track; top of vertical rail	181.50
Milepost 748, 250 feet northeast of, 40 feet east of track; iron post	180.379
Milepost 749, 40 feet north of; top of vertical rail	187.01
Milepost 751, 330 feet west of, 5 feet north of track; top of vertical rail	190.05
Gila City, in front of station; top of rail	189.69
Gila City, at northwest corner of McDaniel's store; iron post	187.308
Milepost 754, 100 feet northwest of; top of vertical rail 35	195.23
Milepost 755, opposite, 50 feet north of track; iron post	192.177
Bridge 758 A, 120 feet west of, 40 feet south of track, 280 feet east of milepost 758; iron post	223.165
Liqurta, in front of signboard; top of rail	229.1
Milepost 761, 330 feet west of, 35 feet north of track, at east end of cut; iron post	256.360
Bridge 762 A, west end of; top of vertical rail 48	234.18
Milepost 763, 330 feet east of; top of vertical rail 1850	233.92
Milepost 764, 26 feet south of, 45 feet south of track; iron post	231.452
Milepost 767, 4 feet east of, 50 feet south of track; iron post	229.815
Wellton, in front of station; top of rail	257.80
Wellton, in foundation of store, west of water tank, in northwest corner; top of bolt	256.58
Milepost 770, 4 feet northwest of, 45 feet south of track; iron post	285.890
Bridge 772 A, 330 feet east of, 50 feet north of track; iron post	304.787
Milepost 776, opposite, 60 feet north of track; iron post	348.378

MOHAWK STATION QUADRANGLE.

[Latitude 32° 30′–33°; longitude 113° 30′–114°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Milepost 779, opposite, 60 feet north of track; iron post	348.60
Colfred siding, west end of, 500 feet east of milepost 782, 50 feet north of track; iron post	328.459

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	Feet.
Milepost 785, opposite, 50 feet north of track; iron post	339.474
Milepost 788, opposite, 50 feet north of track; iron post	417.903
Mohawk, 100 feet north of station, 50 feet north of track; iron post	544.913
Mohawk, 500 feet east of station, 255 feet north of track, set flush with ground in concrete, marked by rock mound; iron post	544.932
Mohawk, in front of station; top of rail	545.60
Milepost 794, opposite, 50 feet north of track; iron post	416.098
Kim, in front of signboard; top of rail	405.23
Milepost 768, 0.5 mile west of, 50 feet north of track, 400 feet north of old house; iron post	355.325
Milepost 800, 4 feet east of, 50 feet south of track; iron post	401.703
Milepost 803, 4 feet east of, 50 feet south of track; iron post	417.613
Milepost 806, 4 feet east of, 50 feet south of track; iron post	459.97

SENTINEL QUADRANGLE.

[Latitude 32° 30′–33°; longitude 113°–113° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Milepost 810, opposite, 50 feet north of track; iron post	488.740
Aztec, in front of station; top of rail (railroad elevation 494)	497.28
Maricopa-Yuma county line, 50 feet north of track; iron post	485.689
Milepost 816, opposite, 50 feet north of track; iron post	520.065
Stanwix, in front of signboard; top of rail	554.6
Milepost 819, opposite, 50 feet north of track; iron post	550.056
Milepost 822, 50 feet north of track, opposite milepost; iron post	611.224
Sentinel, 0.3 mile west of, 70 feet north of track, 50 feet north of forks of road, set in concrete flush with ground; iron post	693.063
Sentinel, in front of station; top of rail	689.51
Milepost 826, 100 feet northeast of, 50 feet north of track; iron post	705.935
Tartion, in front of signboard; top of rail	729.16
Tartion, opposite milepost 832, 50 feet north of track; iron post	726.987
Milepost 835, opposite, 50 feet north of track; iron post	762.86
Painted Rock, in front of station; top of rail	727.6
Painted Rock, 40 feet north of track, opposite signboard; iron post	726.12
Milepost 842, 4 feet west of, 50 feet south of track; iron post	716.16

GILA BEND QUADRANGLE.

[Latitude 33°–33° 30′; longitude 112° 30′–113°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Milepost 845, 5 feet west of, 50 feet south of track; iron post	737.73
Milepost 848, 250 feet east of, 40 feet north of track; iron post	728.429
Smurr, in front of signboard; top of rail	727.85
Milepost 851, 8 feet west of, 50 feet south of track; iron post	726.157
Gila Bend, 0.5 mile west of station, 50 feet south of track; iron post	735.800
Gila Bend, in front of station; top of rail	737.9
Milepost 855, 700 feet east of, 50 feet north of track, at west side of road crossing, set flush with ground in concrete; iron post	745.074
Milepost 855, 700 feet east of, 4 inches west of, above iron post, in concrete 1 foot below surface of ground; aluminum tablet	743.768
Milepost 857, 6 feet west of, 50 feet south of track; iron post	796.956
Coledon, in front of signboard; top of rail	818.94
Milepost 860, 4 feet west of, 50 feet south of track; iron post	928.720
Milepost 863, 5 feet west of, 50 feet south of track; iron post	1,051.504
Milepost 866, 200 feet west of, 50 feet north of track; iron post	1,194.426

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HEATON QUADRANGLE.

[Latitude 33°–33° 30′; longitude 112°–112° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

	Feet.
Ocapos, in front of signboard; top of rail	1,273.97
Milepost 869, 4 feet east of, 75 feet south of track; iron post	1,336.259
Milepost 872, 5 feet south of, 50 feet south of track; iron post	1,486.74
Estrella, in front of station; top of rail	1,523.0
Milepost 875, 5 feet north of, 45 feet south of track; iron post	1,480.909
Buchan, 70 feet south of track, 4 feet south of milepost 878; iron post	1,418.238
Milepost 881, 4 feet south of, 60 feet south of track; iron post	1,358.215
Milepost 884, 4 feet south of, 60 feet south of track; iron post	1,301.98
Milepost 887, 530 feet east of, 60 feet north of track, 100 feet south of road; iron post	1,283.528
Heaton, 4 feet south of milepost 890, 50 feet south of track; iron post	1,217.996
Milepost 893, opposite, 50 feet north of track; iron post	1,152.309
Maricopa, 75 feet northwest of station; iron post stamped "1175 Phnx"	1,175.291
Maricopa, in front of station; top of rail	1,174.80
Maricopa, 0.25 mile southeast of, 120 feet west of bridge A, northeast of track, 100 feet east of road crossing, set flush with ground in cement; iron post	1,177.386
Maricopa, 0.25 mile southeast of, 120 feet west of bridge A, northeast of track, 100 feet east of road crossing, 4 inches east of above iron post, in cement 1 foot below surface of ground; aluminum tablet	1,176.148
Milepost 897, opposite, 40 feet north of track, set flush with ground with collar of cement marking northwest end of base line; iron post	1,179.927

CASA GRANDE QUADRANGLE.

[Latitude 32° 30′–33°; longitude 111° 30′–112°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Milepost 899, 2 feet northeast of, 50 feet southwest of track; iron post stamped "1200 Phnx"	1,200.495
Milepost 902, opposite, 40 feet north of track, set flush with ground with collar of cement marking southeast end of base line; iron post	1,226.206
Sweetwater, northeast of track, midway between section house and well; iron post stamped "1297 Phnx"	1,297.522
Sweetwater, in front of station; top of rail	1,298.79
Milepost 909, 6 feet south of, 45 feet south of track; iron post	1,338.705
Nunez siding, in front of station; top of rail	1,341.2
Milepost 912, 4 feet southwest of, 50 feet south of track; iron post	1,333.516
Milepost 915, opposite, 50 feet east of track, in north angle of forks of road at road crossing, in granite; aluminum tablet	1,367.632
Casa Grande, in front of station; top of rail	1,398.43
Casa Grande, 0.4 mile southeast of, 90 feet northeast of track, 10 feet southeast of gate of private road crossing, in granite; aluminum tablet	1,405.082
Arizola, in front of station; top of rail	1,435.3
Milepost 922, 100 feet north of, 50 feet north of track, in granite; aluminum tablet	1,450.696
Milepost 925, 700 feet west of, in northeast end of east pier of bridge D; aluminum tablet	1,481.010
Tote, in front of signboard; top of rail	1,511.7
Milepost 929, opposite, 50 feet northwest of track, in granite; aluminum tablet	1,532.709

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	Feet.
Eloy, in front of signboard; top of rail	1,565.8
Milepost 933, 400 feet southeast of, in west end of north pier of bridge A; aluminum tablet	1,579.302

RED ROCK QUADRANGLE.

[Latitude 32° 30′-33°; longitude 111°-111° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Picacho, in front of station; top of rail	1,620.89
Picacho, 11 feet northeast of track, in north corner of northwest concrete pier of water tank; aluminum tablet	1,621.962
Milepost 940, opposite, 50 feet northeast of track, in granite rock; aluminum tablet	1,707.477
Wymola siding, in front of station; top of rail	1,765.9
Wymola siding, opposite milepost 943, southeast of track, in granite rock; aluminum tablet	1,769.999
Red Rock, 3.8 miles northwest of, in south end of east pier of bridge B; aluminum tablet	1,809.89
Red Rock, in front of station; top of rail	1,867.68
Red Rock, 15 feet southeast of station, 15 feet west of track; iron post stamped "1856 Nogls"	1,867.829
Milepost 953, 50 feet west of, 4 feet southeast of gate; iron post stamped "1899 Nogls"	1,911.086
Naviska siding, 0.5 mile north of, 200 feet north of track, 12 feet west of road, at Pima-Pinal county line; iron post stamped "1940 Nogls"	1,952.116

LANGHORNE QUADRANGLE.

[Latitude 32°-32° 30′; longitude 111°-111° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Desert Well, 75 feet west of corner of corral; iron post stamped "1960 Nogls"	1,972.443
Marana siding, in front of station; top of rail	1,994.49
Rillito, 2.5 miles northwest of, in southwest corner of concrete bridge; aluminum tablet	2,012.681
Rillito, on west side of water tank, in north corner of second foundation stone; aluminum tablet	2,057.182
Rillito, in front of station; top of rail	2,069.39
Milepost 969, 150 feet northeast of, 100 feet east of track, at fence corner; iron post stamped "2109 Nogls"	2,121.469
Cortoro siding, in front of station; top of rail	2,156.02
Milepost 972, 100 feet southeast of, in east end of south pier of bridge B; aluminum tablet	2,189.740
Milepost 975, 1,000 feet east of, 10 feet west of road fork; iron post stamped "2219 Nogls"	2,231.498
Jaynes siding, in front of station; top of rail	2,244.59
Milepost 977, 125 feet south of, in east end of south pier of bridge A; aluminum tablet	2,258.703

TUCSON QUADRANGLE.

[Latitude 32°-32° 30′; longitude 110° 30′-111°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Stockham siding, in front of station; top of rail	2,315.55
Stockham ranch house, 60 feet west of, 5 feet south of gate; iron post stamped "2313 Nogls"	2,325.699

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	Feet.
Tucson, 88 feet southeast of Pima courthouse, in southeast corner of yard, set flush with ground; aluminum tablet	2,374.996
Tucson, in front of station; top of rail	2,389.0
Polvo siding, 0.8 mile west of, 100 feet south of track, at road crossing, north side of road forks, 4 feet north of fence corner; iron post stamped "2481 Nogls"	2,494.029
Wilmot siding, near west end of, south side of track, at northeast corner of fence around section house; iron post stamped "2651 Nogls"	2,664.044
Rankin siding, 0.7 mile west of, 95 feet south of track, west side of road, 5 feet north of fence corner; iron post stamped "2770 Nogls"	2,783.221
Esmond siding, 2.2 miles west of, 125 feet north of milepost 995, 100 feet north of track, south side of road; iron post stamped "2903 Nogls"	2,916.235
Esmond siding, in front of station; top of rail	3,016.9
Vail, 2.8 miles west of, 145 feet northwest of milepost 999, 15 feet east of old gate; iron post stamped "3096 Nogls"	3,109.302
Vail, in front of station; top of rail	3,232.9
Vail, 220 feet northeast of station, 5 feet east of gate; iron post stamped "3220 Nogls"	3,233.280
Irene siding, 3.2 miles west of, 6 feet north of railroad, in north end of concrete culvert 1004 A; aluminum tablet stamped "3226 1907 206"	3,238.695
Irene siding, 2.1 miles west of, at milepost 1005, on south side of track; top of first bolt from east end of bridge, marked "3265"	3,277.64
Irene siding, 0.5 mile west of, south of track, in east side of coping stone at west end of iron railroad bridge; aluminum tablet stamped "3328 1907 203"	3,340.979
Irene siding, in front of station; top of rail	3,363.8
Pantano, 1 mile west of, 800 feet east of milepost 1010, in southeast corner of south abutment of culvert 1010 A; aluminum tablet stamped "199 H 1907"	3,490.795

PATAGONIA QUADRANGLE.

[Latitude 31° 30′–32°; longitude 110° 30′–111°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Pantano, in front of station; top of rail	3,547.5
Kadmon siding, 4 miles west of, 1,000 feet north of milepost 1013 at road crossing; iron post stamped "3608 Nogls"	3,619.863
Kadmon siding, 3 miles west of, 150 feet east of milepost 1014; top of rail section driven in ground, marked "3661"	3,672.32
Kadmon siding, 1 mile west of, 1 mile north of milepost 1016; iron post stamped "3757 Nogls"	3,768.810
Kadmon siding, in front of station; top of rail	3,822.8

BENSON QUADRANGLE.

[Latitude 31° 30′–32°; longitude 110°–110° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Mescal, 3 miles west of, 500 feet east of milepost 1019, in line of telegraph poles; iron post stamped "3905 Nogls"	3,916.849
Mescal, 2 miles east of, 150 feet west of milepost 1020, on top of rail section driven in ground; marked "3943"	3,954.96
Pima-Cochise county line, top of rail	4,018.1
Mescal, 800 feet west of station, at northeast corner of section-house fence; iron post stamped "4046 Nogls"	4,057.922

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	Feet.
Mescal, in front of station; top of rail	4,063.9
Mescal, 1 mile east of, 400 feet west of milepost 1023, in south guardrail of bridge 1022 B; top of bolthead marked "3998"	4,010.248
Chamiso siding, 2 miles west of, 45 feet south of milepost 1025; iron post stamped "3883 Nogls"	3,895.079
Benson, 3.25 miles west of, 50 feet south of milepost 1028; iron post stamped "3784"	3,795.876
Benson, at northwest corner of Virginia Hotel; iron post stamped "3573 Nogales"	3,584.943
Benson, in front of station; top of rail	3,581.3
Visnaga siding, 2 miles west of, 75 feet south of milepost 1034; iron post	3,635.219
Visnaga siding, in front of station; top of rail	3,786.8
Sibyl, 2.5 miles west of, 200 feet west of milepost 1037, 100 feet south of track; iron post	3,835.996
Sibyl, 0.5 mile west of, 75 feet south of milepost 1039; iron post stamped "170 1907"	3,979.604
Sibyl, in front of station; top of rail	4,008.3
Ochoa siding, 3 miles west of, 300 feet west of milepost 1043, in center of south end of culvert 1042 F; aluminum tablet stamped "165 H 1907"	4,188.584
Ochoa siding, in front of station; top of rail	4,325.8
Ochoa siding, 150 feeet east of water tank, 50 feet south of track, in top of granite bowlder; aluminum tablet stamped "162 H 1907"	4,333.141
Lancha siding, 0.5 mile west of, 50 feet south of milepost 1049; iron post stamped "159½ H 1907"	4,465.010
Lancha siding, in front of station; top of rail	4,492.6

DRAGOON QUADRANGLE.

[Latitude 32°–32° 30′; longitude 110°–110° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Dragoon, 1.5 miles west of, 500 feet west of milepost, in top of south end of culvert 1050 P; top of spike head	4,560.01
Dragoon, 0.5 mile west of, 75 feet south of milepost 1052; iron post stamped "156 H 1907"	4,596.209
Dragoon, in front of station; top of rail	4,614.5
Manzoro siding, 2 miles west of, 100 feet south of milepost 1055; iron post stamped "153 H 1907"	4,529.967

COCHISE QUADRANGLE.

[Latitude 32°–32° 30′; longitude 109° 30′–110°.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Manzoro siding, in front of station; top of rail	4,441.5
Cochise, 4.5 miles west of, 100 feet north of milepost 1058; iron post stamped "150 H 1907"	4,381.668
Cochise, 2.5 miles west of, 150 feet west of milepost 1060, in east end of north guardrail of bridge 1059 E; bolthead	4,308.05
Cochise, 1.5 miles west of, 100 feet south of milepost 1061; iron post stamped "147 H 1907"	4,278.450
Cochise, in front of station; top of rail	4,231.2
Hado siding, 4.25 miles west of, 100 feet north of milepost 1064; iron post stamped "144 H 1907"	4,158.881
Hado siding, 0.25 mile west of, 150 feet north of milepost 1068; iron post stamped "140½ H 1907"	4,144.921

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	Feet.
Willcox, 2.5 miles west of, 100 feet north of milepost 1071; iron post stamped "137 H 1907"	4,163.619
Willcox, 100 feet south of station, in front of Weather Bureau office; iron post stamped "134½ H 1907"	4,167.260
Willcox, in front of station; top of rail	4,166.5
Drury siding, 3 miles west of, 100 feet north of milepost 1075; iron post stamped "133 H 1907"	4,173.906
Glade, 2 miles west of, 100 feet north of milepost 1079; iron post stamped "129 H 1906"	4,320.628
Glade, in front of station; top of rail	4,376.1
Glade, 1 mile east of, 100 feet north of milepost 1082; iron post stamped "126 H 1907"	4,364.836
Aldrich siding, 1.25 miles west of, 100 feet south of milepost 1085; iron post stamped "123 H 1907"	4,201.222
Aldrich siding, in front of station; top of rail	4,149.4
Luzena siding, 1.8 miles west of, 100 feet north of milepost 1088; iron post stamped "120 H 1907"	4,062.179
Luzena siding, in front of station; top of rail	3,985.6
Bowie, 6 miles west of, 100 feet north of milepost 1091; iron post stamped "117 H 1907"	3,967.341
Bowie, 3 miles west of, 100 feet north of milepost 1094; iron post stamped "114 H 1907"	3,869.201

SAN SIMON QUADRANGLE.

[Latitude 32°–32° 30′; longitude 109°–109° 30′.]

From Yuma east along Southern Pacific R. R. to New Mexico State line (part of line).

Bowie, in front of station; top of rail	3,762.5
Bowie, at southwest corner of Solomon & Wickersham's store; iron post stamped "111 H 1907"	3,759.956
Olga siding, 5.25 miles west of, 100 feet north of milepost 1100; iron post stamped "108 H 1907"	3,698.731
Olga siding, 3.25 miles west of, 100 feet north of milepost 1102; iron post stamped "106 H 1907"	3,669.834
Olga siding, in front of station; top of rail	3,624.9
San Simon, 7 miles west of, 100 feet north of milepost 1106; iron post stamped "102 H 1907"	3,613.558
San Simon, 4 miles west of, 100 feet north of milepost 1109; iron post stamped "99 H 1907"	3,593.196
San Simon, 75 feet north of track, 100 feet west of station; iron post stamped "95½ H 1907"	3,612.340
San Simon, in front of station; top of rail	3,613.3
Bawtry siding, 2.2 miles west of, in center of south guardrail of bridge 1113 D, opposite milepost 1114; top of bolthead	3,799.28
Bawtry siding, 1.2 miles west of, 75 feet south of milepost 1115; iron post stamped "93 H 1907"	3,626.433
Bawtry siding, in front of station; top of rail	3,679.0
Vanar, 3.5 miles west of, opposite milepost 1117, in base of telegraph pole; spike (railroad bench mark marked "3719.94")	3,723.40
Vanar, 2.5 miles west of, 75 feet north of milepost 1118; iron post stamped "90 H 1907"	3,794.239
Vanar, in front of station; top of rail	3,906.3
Cavot, 3 miles west of, 75 feet south of milepost 1121; iron post stamped "87 H 1907"	3,909.225

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Jerome and Williams quadrangles.

COCONINO AND YAVAPAI COUNTIES.

The following are the results of a line of precise levels from Del Rio north along the Santa Fe, Prescott & Phoenix Ry. to Ashfork, thence east along the Atchison, Topeka & Santa Fe Ry. to Williams. The leveling was done in 1905 by M. S. Bright.

In 1909 the precise line of the United States Coast and Geodetic Survey along the Atchison, Topeka & Santa Fe Ry. redetermined certain bench marks between Ashfork and Williams, and the results appear in the following list.

JEROME QUADRANGLE.

[Latitude 34° 30′–35°; longitude 112°–112° 30′.]

From Del Rio north along Santa Fe, Prescott & Phoenix Ry. to Ashfork (part of line.)

	Feet.
Del Rio, 5.1 miles northeast of, 1 mile northeast of Valley siding, north of road, 100 feet north of track; iron post stamped "4495 Prsct"	4,502.583
Milepost 25, 10 feet west of, 40 feet north of track; iron post	4,672.797
Cedar Glade, 1 mile south of, 40 feet north of milepost 22, 70 feet west of track; iron post	4,649.599
Cedar Glade, in front of station; top of rail	4,649.0

WILLIAMS QUADRANGLE.

[Latitude 35°–35° 30′; longitude 112°–112° 30′.]

From Del Rio north along Santa Fe, Prescott & Phoenix Ry. to Ashfork (part of line.)

Milepost 19, 10 feet south of, 40 feet west of track, 20 feet west of road; iron post	4,751.693
Rock Butte siding, 0.25 mile south of, 40 feet west of track, at road crossing, 3 feet north of milepost 16; iron post	4,924.68
Rock Butte siding, in front of station; top of rail	4,935.3
Little Hell Canyon, 300 feet north of, 210 feet north of milepost 13, 50 feet east of track; iron post	5,007.857
Meath siding, 0.5 mile south of, at north end of cut, 40 feet east of track; iron post	5,098.88
Meath siding, in front of station; top of rail	5,118.7
Ashfork, 6.5 miles south of, 0.5 mile south of milepost 6 at south end of cut, 40 feet east of track; iron post	5,190.695
Ashfork, 3 miles south of, opposite milepost 3, 50 feet east of track; iron post	5,126.647
Ashfork, 300 feet south of Atchison, Topeka & Santa Fe Ry. station, at southeast corner of Lewis Avenue and Third Street; iron post (Coast and Geodetic Survey value)	5,139.464
Ashfork, in front of station; top of rail	5,135.6

From Ashfork east along Atchison, Topeka & Santa Fe Ry. to Williams.

Bridge A 401, south end of, in east stone pier; aluminum tablet (Coast and Geodetic Survey value)	5,132.667
Milepost 397, 4 feet west of, 50 feet north of track, in rock outcrop; aluminum tablet (Coast and Geodetic Survey value)	5,444.401
Denair siding, in front of station; top of rail	5,508.1
Milepost 394, 6 feet west of, in rock outcrop; aluminum tablet (Coast and Geodetic Survey value)	5,711.787

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	Feet.
Fairview, 35 feet north of track, at south end of stone fence; iron post (Coast and Geodetic Survey value)	5,935.756
Bridge 388 D, in east pier, south of track, in second stone from top; aluminum tablet	6,309.210
McClellan siding, in front of station; top of rail	6,434.0
Milepost 385, 40 feet southwest of, 50 feet west of track, in rock outcrop; aluminum tablet (Coast and Geodetic Survey value)	6,566.863
Supai, 80 feet northwest of station, 35 feet north of track; iron post (Coast and Geodetic Survey value)	6,960.003
Williams, in front of station; top of rail	6,759.6
Williams, at northwest corner of Grand Canyon Hotel; iron post stamped "6770" (Coast and Geodetic Survey value)	6,766.512

PRIMARY LEVELING.

Petrified Forest quadrangle.

APACHE AND NAVAJO COUNTIES.

The elevations in the following list are based on United States Coast and Geodetic Survey bench marks along the Atchison, Topeka & Santa Fe Ry.

The leveling was done in 1910 by Pearson Chapman.

PETRIFIED FOREST QUADRANGLE.

[Latitude 34° 45′–35°; longitude 109° 45′–110°.]

From Santa Fe bridge B 240 south along highway to Ortega ranch, thence to township corner and south, east, and north along Holbrook Forest road to Adamana.

	Feet.
Carrizo, 1 mile west of, in north end of west abutment of Atchison, Topeka & Santa Fe Ry. bridge B 240 over Rio Puerco; bronze tablet (C. & G. S. precise b. m. N 4)	5,219.649
T. 18 N., R. 22 E., sec. 18, 0.1 mile south of Atchison, Topeka & Santa Fe Ry. bridge B 240, on cap rock of small butte; aluminum tablet stamped "5235"	5,236.078
Santa Fe bridge B 240, 1.2 miles south of, west of dim road, northeast of Carrizo Butte; paint spot on top of flat rock marked "5241"	5,242.16
T. 18 N., R. 23 E., sec. 30, 0.5 mile east of Adamana-Woodruff road; in white sandstone outcrop marked "5272"	5,273.31
T. 18 N., R. 22 E., sec. 36, on rock outcrop on left of road; marked "5263"	5,263.53
T. 18 N., R. 22 E., sec. 35, 500 feet southwest of Ortega's ranch, corner of small ledge chiseled off and marked by a small cairn marked "5287"	5,287.05
T. 18 N., R. 22 E., sec. 36, west of road to Woodruff; paint spot on small outcrop marked "5321"	5,323.42
Ortega ranch, 1.3 miles southeast of, 300 feet northwest of corner of Tps. 17 and 18, Rs. 22 and 23 E., on field of rock; marked "5305"	5,305.69
Tps. 17 and 18 N., Rs. 22 and 23 E.; top of township corner stone marked "5299"	5,301.4
Ortega ranch, 5.2 miles southeast of; paint spot on flat stone about 100 pounds in weight, laid on ground, marked "5463"	5,464.65
T. 17 N., R. 23 E., sec. 20, 500 feet southwest of small painted butte, in flat conglomerate rock; aluminum tablet stamped "5453"	5,453.058
Ortega ranch, 5 miles south of, on most northerly rock on north side of low mesa; highest point marked "5434"	5,434.84

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	Feet.
Ortega ranch, 7.4 miles south of, 0.2 mile northeast of small corral; top of stone set 6 inches above and 1 foot below ground marked "5396"	5,396.17
T. 17 N., R. 23 E., sec. 33, 20 feet northeast of road from Holbrook to Petrified Forest, 60 feet northwest of point where road reaches top of mesa, in rim rock of mesa; aluminum tablet stamped "5589"	5,589.019
T. 16 N., R. 23 E., sec. 2, 160 feet west of edge of breaks where road descends into Rainbow Forest, on north side of road; copper nail in stake, stone laid on ground marked "5570"	5,570.84
Ortega ranch, 11.2 miles southeast of, on north side of road; copper nail in stake, marked "5486"	5,486.04
T. 16 N., R. 23 E., near center of sec. 1, 20 feet south of road, 75 feet east of wash from southeast, in large petrified log; aluminum tablet stamped "5475"	5,475.747
T. 17 N., R. 23 E., sec. 36, east of road; chiseled mark on rock, marked "5508"	5,508.21
T. 17 N., R. 24 E., sec. 31, to left of wash, large stone; paint spot on highest point, marked "5561"	5,561.26
T. 17 N., R. 24 E., sec. 30, 10 feet east of road where it passes over brow of mesa, in rim rock; aluminum tablet stamped "5639"	5,639.521
T. 17 N., R. 24 E., sec. 20, 10 feet east of road where it descends over a small rim 6 feet high; paint spot on small ledge, marked "5597"	5,597.77
T. 17 N., R. 24 E., sec. 17, 35 feet southeast of road, section of petrified log bedded in ground; paint spot on highest point, marked "5534"	5,534.73
T. 17 N., R. 24 E., sec. 8, 1,000 feet southwest of south end of ragged mesa; paint spot on rock on east side, marked "5479"	5,478.79
T. 17 N., R. 24 E., near center of sec. 8, 150 feet east of road, 1,000 feet west of ragged mesa south of first forest; aluminum tablet stamped "5463"	5,463.654
T. 17 N., R. 24 E., in sec. 8, 40 feet west by 450 feet south of fork of Natural Bridge road; chisel mark in sandstone on conglomerate rock marked "5450"	5,450.01
T. 17 N., R. 24 E., sec. 5; copper nail in stake set below ground (elevation painted on section of petrified wood) marked "5376"	5,376.46
T. 18 N., R. 24 E., sec. 32, on top of rock bench 3 feet high, 3.5 feet east of west edge, bench trends north-northwest toward a small rock-capped butte 500 feet distant; aluminum tablet stamped "5359"	5,358.982
T. 18 N., R. 24 E., sec. 29, 20 feet north of bridge over wash; elevation painted on bridge "5346"	5,345.50
T. 18 N., R. 24 E., sec. 29; top of stake driven in low rock marked "5326"	5,326.66
T. 18 N., R. 24 E., sec. 20; copper nail in stake, top of rock marked "5325"	5,324.93
Adamana, on south side of Atchison, Topeka & Santa Fe Ry. track, opposite station; chisel mark in square stone post (C. & G. S. b. m. P 4)	5,297.483
Adamana, 720 feet east of station, in foundation of north side of water tank; aluminum tablet stamped "5301"	5,302.183

From Ortega ranch north along highway to Coast and Geodetic Survey bench mark on Atchison, Topeka & Santa Fe Ry. culvert B 242.

Ortega ranch, 1.3 miles north of, at west end of craggy end of small mesa pointing west; paint spot on top of rock about 5 feet high marked "5242"	5,243.46
T. 18 N., R. 22 E., corner of secs. 13, 14, 23, and 24; top of section-corner post marked "5207"	5,209.74
Aztec, 4 miles east of, 3.8 miles north of Ortega ranch, on south coping of culvert B 242; chiseled square (C. & G. S. b. m. M 4)	5,195.843

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From bridge B 240 along Atchison, Topeka & Santa Fe Ry. and highway to section corner.

	Feet.
Atchison, Topeka & Santa Fe Ry. bridge B 240, 1.2 miles west of, on south side of track; top of whistle post	5,207.19

From Adamana road east along highway to Natural Bridge (spur line, double target settings).

T. 17 N., R. 24 E., NE. ¼ sec. 9, 1.4 miles from Adamana road, 10 feet southeast from south end of bridge, in natural rock abutment of Natural Bridge; aluminum tablet	5,575.089

Arivaca, Benson, Bisbee, Dragoon, Hereford, Nogales, Patagonia, Red Rock, Tucson, and Winkelman quadrangles.

COCHISE, PIMA, PINAL, AND SANTA CRUZ COUNTIES.

The elevations in the following list are based upon precise levels along the Southern Pacific R. R. from Yuma. Additional elevations in the Benson, Dragoon, Patagonia, Red Rock, and Tucson quadrangles are given in the list of results of precise leveling, pages 7–16.

The leveling in the Winkelman quadrangle was done by Thomas Winsor in 1900, by M. S. Bright in 1904, and by L. F. Biggs in 1909; that in the Benson quadrangle by Chester Irvine in 1901, by Bright in 1903 and 1904, by R. H. Sargent in 1905, and by Cornelius Schnurr in 1913. The leveling in the Arivaca, Nogales, and Red Rock quadrangles was done by Bright in 1903; in the Patagonia and Tucson quadrangles by Bright in 1903 and 1904; and in the Bisbee and Hereford quadrangles by Irvine in 1901. Additional leveling in the Bisbee quadrangle was done in 1914 by S. H. Birdseye.

The stamped elevations are based upon elevations determined by the International Boundary Commission and found later to be unreliable.

WINKELMAN QUADRANGLE.

[Latitude 32° 30′–33°; longitude 110° 30′–111°.]

From Wooten ranch along trail via Deer Creek coal fields and Manning's ranch to Dudleyville.

	Feet.
Wooten ranch, 3.25 miles west of, in top of hard sandstone outcrop 6 feet south of trail, 10 feet northeast of 12-inch blazed pine tree, 150 feet east of point where trail crosses wash; aluminum tablet stamped "4041 Phnx"	4,040.754
Mings ranch, 2.25 miles east of, on north side of trail, 30 feet east of ravine, in top of triangular bowlder; aluminum tablet stamped "3528 Phnx"	3,527.586
Mings ranch, 1.25 miles west of, in front of 4-inch paloverde tree, 10 feet southwest of trail, in top of hard flint bowlder; aluminum tablet stamped "2998 Phnx"	2,997.929
Mings ranch, 5 miles west of, 20 feet south of trail, at west edge of gravel mound, in top of limestone bowlder; aluminum tablet stamped "2652 Phnx"	2,651.580
Mings ranch, 7.5 miles west of, on north side of trail, southwest bank of Little Rock Creek, on top of kite-shaped bowlder; aluminum tablet stamped "2510 Phnx"	2,509.317

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	Feet.
Dudleyville, 7 miles east of, on north side of Ash Creek, at mouth of and on east side of canyon through which trail passes, in top of ledge; aluminum tablet stamped "2218 Phnx"	2,218.085
Dudleyville, 4 miles east of, on southeast side of road, at summit of short steep ascent, 400 feet northeast of wash; iron post stamped "2418 Phnx"	2,417.451
Dudleyville, 170 feet southeast of post office, in front of guidepost in south. east corner of intersection of crossroads; iron post stamped "1950 Phnx"	1,949.818

From Dudleyville southeast up San Pedro River to Pima-Pinal county line.

L. Swingle ranch house, 60 feet south of, 2 feet west of gate, north side of road; iron post stamped "1997 Nogls"	2,009.469
Old Dodson ranch house, 0.8 mile north of, 4 feet west of road, 20 feet north of trail leading east to river; iron post stamped "2108 Nogls"	2,120.546
Old Dodson ranch house, 1.5 miles south of, 10 feet west of road and 40 feet west of river, at toe of ridge on flint rock outcrop; painted point	2,126.54
Old Dodson ranch house, 2.5 miles south of, 50 feet north of Fort Grant Wash, in road forks; iron post stamped "2169 Nogls"	2,181.525
Mammoth, 6.25 miles northwest of, 1,200 feet northwest of road down wash, 600 feet southeast of road forks, 8 feet west of road; iron post stamped "2295 Nogls"	2,307.598
Mammoth, 3 miles northwest of, on spur of hill, 25 feet south of wash, 6 feet west of road; iron post stamped "2346 Nogls"	2,358.711
Mammoth, west side of principal street, northeast corner of fence around J. E. Dubois's residence; iron post stamped "2336 Nogls"	2,348.705

NOTE.—Between this point and Cleland ranch a constant only was added, throwing error of 0.9 foot at the Cleland ranch end of the line.

Mammoth, 3 miles southeast of, 10 feet east of road, foot of hill, 4 feet west of scrub mesquite tree; iron post stamped "2424 Nogls"	2,436.720
J. L. Clark ranch house, 800 feet east of, west side of road, 2 feet south of gate entrance to ranch; iron post stamped "2466 Nogls"	2,478.674
Acton ranch, 2.25 miles southeast of, between two buttes, on rock saddle, 15 feet southwest of road, in granite outcrop; aluminum tablet stamped "2578 Nogls"	2,590.910
Whitlock ranch house, 1 mile southeast of, in road forks, 80 feet southeast of John Schoeyholzer's mail box; iron post stamped "2599 Nogls"	2,611.602
Cleland ranch, 1.5 miles northwest of, 30 feet south of wash, 8 feet west of road; iron post stamped "2677 Nogls"	2,689.615
Cleland ranch, 0.5 mile north of, east edge of road, in west side of 14-inch leaning mesquite tree; spike	2,674.78
Cleland ranch, 70 feet north of ranch house, 2 feet north of northwest corner of windmill; painted point on stone	2,673.38
Cleland ranch, 2.25 miles south of, 150 feet northwest of old adobe house on east edge of road on Pima-Pinal county line; iron post stamped "2703 Nogls"	2,714.755

From point 5.5 miles north of Ben Buzzini ranch north to Oracle, thence northeast to Mammoth.

Ben Buzzini, 7.25 miles north of, east side of wash, south end of ridge, east edge of road, 125 feet south of road forks; iron post stamped "3206 Nogls"	3,218.761
Big Walnut ranch house, 10 feet north of, in forks of 15-inch double mesquite tree; bolt	3,304.04
Big Walnut, 1.25 miles north of, in forks of Tucson–Dudleyville and Tucson–Oracle roads; iron post stamped "3399 Nogls"	3,411.614

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	Feet.
Big Walnut, 4.25 miles northeast of, north side of wash, 260 feet west of old road forks, 30 feet north of road, in granite bowlder outcrop; aluminum tablet stamped "3676 Nogls"	3,688.850
Big Walnut, 7.5 miles northeast of, on north spur of ridge, 20 feet north of road forks, 4 feet above ground in conspicuous granite outcrop; aluminum tablet stamped "4040 Nogls"	4,052.632
Oracle, 60 feet northwest of post-office building, 4 feet north of gate; iron post stamped "4502 Nogls"	4,514.816
Armstrong ranch house, 800 feet northwest of, on top of slight ridge, 135 feet north of road forks, west side of road; paint point on granite outcrop	4,247.70
Oracle, 2.8 miles northeast of, 300 feet north of main canyon, east edge of road, in granite outcrop; aluminum tablet stamped "4060 Nogls"	4,072.722
Oracle, 5.8 miles northeast of, east side of main canyon, 15 feet east of road, in mouth and in south side of small wash, in granite outcrop; aluminum tablet stamped "3653 Nogls"	3,666.003
Shultz, 1,000 feet south of Mammoth mine, 1,000 feet west of Mohawk mine, 25 feet north of road, in granite outcrop; aluminum tablet stamped "3160 Nogls"	3,172.340

From Oracle east along highway to Cleland ranch.

Oracle, 3 miles east of, top of ridge, north side of road; iron post stamped "4503 Nogls"	4,515.586
American Flag ranch house, 10 feet south of; paint point on granite outcrop	4,430.60
American Flag, 0.8 mile south of, on ridge, 50 feet north of road forks, 10 feet west of road leading to Clark mine; iron post stamped "4454 Nogls"	4,466.617
Brady ranch, 1.25 miles southeast of, northeast point of ridge between Pepper Sauce canyons, about 400 feet west of trail in canyon, in granite bowlder; aluminum tablet stamped "4433 Nogls"	4,445.764
Kellogg ranch, 1.25 miles north of, 150 feet east of canyon, 2 feet east of trail, in granite bowlder; aluminum tablet stamped "4618 Nogls"	4,630.769
Kellogg ranch, 2.25 miles east of, low gap in ridge, head of canyon leading east, 6 feet south of main canyon, 8 feet south of road, in granite outcrop; aluminum tablet stamped "3995 Nogls"	4,007 894
Kellogg ranch, 5.25 miles east of, on flat ridge, 10 feet south of road, 50 feet north of canyon; iron post stamped "3478 Nogls"	3,490.445
Cleland ranch, 2.8 miles west of ranch house, 200 feet north of canyon, 12 feet north of road, 10 feet west of scrub mesquite, in granite bowlder; aluminum tablet stamped "3030 Nogls"	3,042.050

Near Dudleyville.

Dudleyville, 3 miles northwest of, near corner of wire fence, at bend, on northeast side of road; iron post stamped "1893 Phnx"	1,892.663
Winkelman, in front of railroad station; top of rail	1,941.5

RED ROCK QUADRANGLE.

[Latitude 32° 30′–33°; longitude 111°–111° 30′.]

From Red Rock north along highway to point near Florence.

Red Rock, 15 feet southeast of station, 15 feet west of railroad track, 2 feet south of telegraph pole; iron post stamped "1856 Nogls"	1,867.829
Red Rock, in front of station; top of rail	1,867.6
Red Rock, 2.8 miles north of, in road forks; iron post stamped "1818 Nogls"	1,829.770

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	Feet.
Red Rock, 6.5 miles north of, 50 feet northwest of road, northeast corner of adobe hut; iron post stamped "1834 Nogls"	1,845.684
Red Rock, 9.8 miles north of, 14 feet east of 12-inch mesquite tree, 4 feet west of road; iron post stamped "1880 Nogls"	1,891.846
Red Rock, 13 miles north of, 4 feet west of road; iron post stamped "1915 Nogls"	1,926.686
Paisano Tanks, 0.8 mile south of, 5 feet west of road, iron post stamped "1953 Nogls"	1,964.804
Paisano Tanks, 200 feet west of, in signpost reading "Tucson 50 miles—Owlhead Water 20 miles"; spike	1,970.20
Paisano Tanks, 2.8 miles north of, 10 feet west of, 4 feet south of giant cactus; iron post stamped "1909 Nogls"	1,920.744
Paisano Tanks, 6 miles north of, 4 feet east of road, 4 feet north of 4-inch mesquite tree; iron post stamped "1751 Nogls"	1,762.899
Paisano Tanks, 9.25 miles north of, 4 feet west of road, 6 feet south of scrub mesquite tree; iron post stamped "1669 Nogls"	1,680.750
Florence, 3 miles south of, 6 feet east of road, 6 feet south of mesquite bush; iron post stamped "1586 Nogls"	1,597.661

TUCSON QUADRANGLE.

[Latitude 32°-32° 30′; longitude 110° 30′-111°.]

From Whitgoods ranch north along highway to point 5.5 miles north of Ben Buzzini ranch.

Benedict ranch house, 450 feet southeast of, east side of road, in west side of telephone pole; bolt	2,303.66
Benedict ranch house, 0.8 mile north of, east side of wash north-south, foot of hills, east edge of road; iron post stamped "2325 Nogls"	2,337.896
Benedict ranch, 2.5 miles north of, 10 feet east of road, 150 feet south of road forks; paint point on bowlder outcrop	2,493.58
Benedict ranch, 4.8 miles north of, 3.5 miles south of steam pump, east edge of road; iron post stamped "2616 Nogls"	2,628.675
T. 12 S., R. 14 E., sec. 7, Puschs steam pump, 2 feet south of northeast corner of pump house, west side of road; iron post stamped "2573 Nogls"	2,585.742
Ben Buzzini ranch, 1 mile north of, in road forks, on ridge; iron post stamped "2835 Nogls"	2,847.903
Ben Buzzini ranch, 4 miles north of, north end of ridge, where road enters canyon, 30 feet west of road, on east side of canyon; iron post stamped "3069 Nogls"	3,081.657

From Tucson east along highway to M. Martinez ranch, thence northwest across country to Agua Caliente ranch, thence west to Benedict ranch.

Tucson, northwest corner of Third Street and Eighth Avenue; top of hydrant	2,383.13
Tucson, University of Arizona, at east driveway entrance, 3 feet south of gate; iron post stamped "2412 Nogls"	2,424.794
T. 14 S., R. 14 E., sec. 3, 2.3 miles east of Edmonson ranch, 5 feet south of road; iron post stamped "2473 Nogls"	2,485.671
T. 14 S., R. 15 E., north edge of sec. 6, 5.25 miles east of Edmonson ranch, 1,000 feet east of Pantano Wash, on ridge in road forks; iron post stamped "2515 Nogls"	2,527.750
T. 14 S., R. 15 E., sec. 3, 15 feet north of William H. Bush's adobe house, 15 feet south of road; iron post stamped "2530 Nogls"	2,542.805

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	Feet.
Domingo Martinez ranch (near Tanque Verde), 0.8 mile southeast of, near southwest corner of sec. 5, T. 14 S., R. 16 E., 1,000 feet south of schoolhouse, on ridge north side of road, at angle to east, 4 feet south of fence corner; iron post stamped "2649 Nogls"	2,661.614
Juan Cruz ranch house, 100 feet south of, 15 feet west of gate; paint point on bowlder outcrop	2,676.99
M. Martinez ranch house, 305 feet west of, sec. 3, T. 14 S., R. 16 E., 15 feet northeast of road forks, 10 feet south of green tree, in granite outcrop; aluminum tablet stamped "2711 Nogls"	2,723.396
Agua Caliente ranch house, 400 feet southeast of, south side of sec. 20, T. 13 S., R. 16 E., west edge of Agua Caliente Spring, in granite outcrop; aluminum tablet stamped "2728 Nogls"	2,740.450
T. 13 S., R. 15 E., sec. 26, 3 miles west of Caliente Spring along Sabina Canyon, 0.25 mile northeast of two buttes, 8 feet south of road; iron post stamped "2635 Nogls"	2,647.561
Corrillo ranch house, 60 feet northeast of, 70 feet west of wash, in granite bowlder; aluminum tablet stamped "2596 Nogls"	2,608.056
Corrillo ranch, 2 miles northwest of, west side of main road at forks, northeast side of canyon; paint point on bowlder	2,742.62
Fort Lowell, 2.8 miles north of, on ridge in gap, 25 feet north of road; iron post stamped "2733 Nogls"	2,745.370
Manuel Brooks ranch, 0.8 mile west of, 35 feet north of wire fence and south edge of road forks; iron post stamped "2400 Nogls"	2,412.620

From M. Martinez ranch northeast along highway to Redington.

M. Martinez ranch house, 3.25 miles northeast of, top of west spur of mountain, west edge of road, in granite outcrop; aluminum tablet stamped "3920 Nogls"	3,932.638
Carrillo ranch house, about 900 feet northwest of, east edge of road forks of two small canyons; paint point on granite outcrop	4,095.12
Vail ranch house, about 1,000 feet west of, 500 feet south of gate at entrance to ranch, top of ridge, 8 feet west of road, in granite outcrop; aluminum tablet stamped "4284 Nogls"	4,296.218
Vail ranch, 2.25 miles east of, top of divide, 35 feet northwest of road, in granite outcrop; aluminum tablet stamped "4340 Nogls"	4,352.293
Youtcy ranch, 2.25 miles west of, north edge of road entrance to bed of canyon; paint point on granite bowlder	4,146.48
Youtcy ranch house, 600 feet southwest of, east edge of canyon, 8 feet east of road, in granite outcrop; aluminum tablet stamped "3851 Nogls"	3,863.586
Youtcy ranch, 3.5 miles northeast of, on ridge 20 feet west of canyon, 3 feet east of road; iron post stamped "3573 Nogls"	3,585.462

From Tucson south along highway to southeast corner of Papago Indian Reservation.

Tucson, in front of Southern Pacific R. R. station; top of south rail	2,388.8
Tucson, corner West Sixth and North Court streets; top of hydrant	2,359.90
Tucson, south wall of Pima County courthouse, 11 feet west of south entrance, in fourth foundation stone from ground; bronze tablet stamped "2364 Nogls"	2,376.849
Tucson, 1.8 miles south of courthouse, 0.5 mile east of river, 150 feet east of river bottom, at south end of Osborne Avenue, at angle to west, 3 feet west of gate entrance to A. Duravo's pasture; iron post stamped "2376 Nogls"	2,389.168

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	Feet.
Tucson, 4.25 miles south of, 0.25 mile east of river, at junction of seven roads, 6 feet east of southeast fence corner; iron post stamped "2434 Nogls"	2,446.888
Tucson, 6.5 miles south of, 600 feet west of river, 15 feet west of northwest fence corner at angle of road; iron post stamped "2452 Nogls"	2,464.817
Tucson, 8 miles south of, in south gatepost at entrance to inclosure on Papago Reservation adobe settlement; spike	2,498.98
Tucson, 9.5 miles south of, 0.5 mile south of Sahuarito Butte, on ridge, 275 feet east of river bottom, 50 feet west of wire fence, 2 feet south of mesquite tree, in road forks; iron post stamped "2540 Nogls"	2,552.712
Hart ranch, 6.25 miles north of, 10 feet east of road, 1 foot north of telephone pole; iron post stamped "2594 Nogls"	2,606.927
Hart ranch, 3.5 miles north of, south side of flat draw, 100 feet west of road, 175 feet southeast of adobe house, 1 foot north of telephone pole; iron post stamped "2630 Nogls"	2,643.000

From Vail southwest 3 miles.

Vail, 220 feet northeast of station, 5 feet east of gate; iron post stamped "3220"	3,233.279
Vail, 2.8 miles south of, crossing of Andrade-Tucson and Vail-Helvetia roads, southwest side; iron post stamped "3290 Nogls"	3,303.481

From Vail southeast 3 miles.

Vail, 1 mile southeast of, west edge of road, 150 feet south of road forks; paint point on bowlder outcrop	3,274.94
Vail, 2 miles southeast of, 200 feet east of old road forks, 8 feet north of road; paint point on bowlder outcrop	3,353.67
Vail, 3 miles southeast of, 20 feet west of road; paint point on stone	3,440.52

From Tucson west along highways to Carnegie Botanical Laboratory.

Tucson, 1.9 miles west of, 20 feet south of forks, 800 feet east of hospital, west side of road; cross on rock	2,353.26
Tucson, 2.8 miles west of, at Carnegie Botanical Laboratory, 10 feet north of east entrance, near northeast corner of building; aluminum tablet stamped "2674 1907" (records destroyed, stamping and elevation doubtful)	2,363.665

DRAGOON QUADRANGLE.

[Latitude 32°–32° 30′; longitude 110°–110° 30′.]

From Pima-Pinal county line south along highway to point near Benson.

Redington, 3.25 miles north of, 100 feet west of angle in road to south, 6 feet west of scrub mesquite tree, 4 feet north of road; iron post stamped "2788 Nogls"	2,799.997
Redington, 45 feet south of post office, in granite bowlder outcrop; aluminum tablet stamped "2869 Nogls"	2,881.003
Redington, 4 miles southeast of, north side of flat ridge, north side of main road, 60 feet east of road forks; iron post stamped "2994 Nogls"	3,005.950
San Antonio Church, 2 feet east of southeast corner; iron post stamped "3018 Nogls"	3,029.946
Antonio Soso ranch house, 800 feet north of, west edge of road forks, 1 foot east of corner post at angle in fence; iron post stamped "3057 Nogls"	3,068.993
J. L. Story ranch house, 1,600 feet west of, entrance to ranch, 600 feet east of road forks, in south gate post; spike	3,147.85

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	Feet.
Pool post office and ranch house, 400 feet northeast of, 2 feet east of scrub mesquite tree, 6 feet west of road forks; iron post stamped "3158.5 Nogls".	3,170.461
Mercedes Lopez ranch house, 300 feet east of, top of ridge, east side of road forks; iron post stamped "3200 Nogls"	3,211.909
Boone ranch, 0.5 mile south of, 150 feet east of river, 50 feet east of irrigation ditch, east side of road forks, west end of ridge at angle in road to east; iron post stamped "3216 Nogls"	3,227.809
George Etz ranch house, 900 feet northwest of, 2 feet west of south gate-post entrance to ranch; iron post stamped "3263 Nogls"	3,274.896
George Etz ranch, 2.8 miles south of, on spur of hill, 6 feet west of road in hills, about 600 feet north of angle in road to west up wash; iron post stamped "3372 Nogls"	3,383.895
George Etz ranch, 5.8 miles south of, 10 feet east of road, 2 feet southwest of 10-inch leaning mesquite tree utilized as fence-corner post; iron post stamped "3402 Nogls"	3,413.902
T. 15 S., on line between Rs. 19 and 20 E., 850 feet east of section corner, east side of road at forks; iron post stamped "3435 Nogls"	3,446.842
Marcos Pachico ranch, 1.5 miles southeast of, on point of ridge, at south edge of river bottom, south side of irrigation ditch, 2 feet south of fence corner post; iron post stamped "3443 Nogls"	3,454.841

From point 2 miles southeast of Redington southwest 3.5 miles.

Moraga ranch, about 0.3 mile north of, 250 feet west of river bottom, west end of lane, south side of road forks, at intersection of wire and brush fence, 3 feet east of 12-inch mesquite tree, 4 feet north of three 13-inch mesquite trees; iron post stamped "2899 Nogls"	2,911.549

PATAGONIA QUADRANGLE.

[Latitude 31° 30′–32°; longitude 110° 30′–111°.]

From point 3.2 miles north of Marsh & Driscoll ranch north to southeast corner of Papago Indian Reservation.

Marsh & Driscoll ranch, 5.25 miles north of, 12 feet east of road, 2 feet north of 10-inch mesquite tree; iron post stamped "2874 Nogls"	2,887.025
S. E. Brown ranch house, 270 feet west of, 12 feet east of road, 1 foot north of mail-box post; iron post stamped "2783 Nogls"	2,796.091
S. E. Brown ranch, 3 miles north of, 9 feet west of road, 2 feet south of 10-inch mesquite tree; iron post stamped "2715 Nogls"	2,728.125
Hart ranch, 65 feet east of road, point on top of south concrete wall around small reservoir	2,690.48
Hart ranch, 0.5 mile north of, on open flat, in road forks; iron post stamped "2665 Nogls"	2,677.999

From point 3 miles southwest of Vail southwest 21 miles to south gate of United States Botanical Range Reserve, thence northwest to sec. 7, T. 17 S., R. 14 E.

Ts. 16 and 17 S., Rs. 15 and 16 E., 2 feet north of stone corner of townships; iron post stamped "3237 Nogls"	3,250.381
Vail, 5.5 miles south of, 75 feet south of road forks, in south side of double paloverde tree, south side of wash; iron bolt	3,335.14
Stone ranch, 3.5 miles north of, foot of mesa, in road forks; iron post stamped "3323 Nogls"	3,336.413
Stone ranch house, 250 feet northwest of, in road forks, on west slope of ridge; iron post stamped "3824 Nogls"	3,837.456
Neff & Buckobus ranch house, 40 feet west of, in top of post at northeast corner of Bessie mine location; nail	3,901.98

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	Feet.
Helvetia, 0.5 mile west of, south side of canyon, in road forks; iron post stamped "4173 Nogls"	4,186.218
Proctor ranch house, 600 feet north of, on north side of Box Canyon; iron post stamped "4267 Nogls"	4,280.331
Proctor old ranch, 2.8 miles south of, 90 feet south of Sawmill Canyon, 145 feet west of fence corner at angle to northwest, 2 feet north of fence; iron post stamped "3969 Nogls"	3,982.310
United States Botanical Reserve, 3 feet east of south gate; iron post stamped "3721 Nogls"	3,734.418
United States Botanical Reserve, south gate in fence, 3.8 miles north of, 4 feet west of road and 4 feet east of 12-inch leaning mesquite tree; iron post stamped "3386 Nogls"	3,399.473
United States Botanical Reserve, north gate in fence, 1.25 miles south of, west edge of road, south side of spreading paloverde tree; iron post stamped "2963 Nogls"	2,976.451
United States Botanical Reserve, north gate in fence, in east gatepost; spike	2,881.42
Hart ranch, 3.8 miles south of, 4 feet west of road, 8 feet east of 8-inch mesquite tree, 200 feet north of angle in road to northwest; iron post stamped "2800 Nogls"	2,813.423

From point 3 miles southeast of Vail southeast along highways to Andrade ranch, thence southwest to point near Greaterville, thence east to Empire ranch, thence northeast to Sanford ranch, thence north to Pantano.

Vail, 4 miles southeast of, on ridge, 5 feet west of road; iron post stamped "3531 Nogls"	3,544.440
Vail, 6.25 miles southeast of, 215 feet southeast of road fork, 12 feet west of road, in granite outcrop; aluminum tablet stamped "3711 Nogls"	3,724.262
Andrade ranch house, 200 feet west of, in granite outcrop; aluminum tablet stamped "3745 Nogls"	3,757.833
Andrade ranch, 4.25 miles south of, crossing of road and wash, east side, in point of conglomerated rock bluff; bronze tablet stamped "4079 Nogls"	4,092.366
Rosemont, 1.8 miles northeast of, 500 feet west of road forks, south point of ridge, 65 feet east of wash, 12 feet north of road, 3 feet south of double mesquite tree, in granite outcrop; bronze tablet stamped "4534 Nogls"	4,547.178
Rosemont, 400 feet north of schoolhouse, in road forks, in south side of 20-inch Spanish oak tree; spike	4,781.43
Rosemont, 2.5 miles south of, head of Box Canyon, in gap at top of ridge, 2 feet west of road; iron post stamped "5164 Nogls"	5,177.168
Empire ranch, 3.8 miles west of, north side of wash, about 150 feet south of hills, 20 feet north of road; iron post stamped "4900 Nogls"	4,913.372
Empire ranch house, 0.25 mile south of, west side of road forks, 10 feet north of 12-inch mesquite tree utilized as fence-corner post; iron post stamped "4632 Nogls"	4,645.058
Empire ranch, 4.25 miles north of, on slight ridge, 10 feet east of road, 6 feet north of gate; iron post stamped "4320 Nogls"	4,333.122
Sanford old ranch house, 20 feet east of, east edge of road on fence line, in west side of 20-inch dead tree; staple	4,213.003
Sanford ranch, 1 mile north of, in gap at top of ridge, north edge of road; iron post stamped "4316 Nogls"	4,329.080
Total Wreck, 700 feet north of, 20 feet east of road in gap; paint point on rock	4,575.87

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	Feet.
Total Wreck, 1.5 miles northwest of, west side of canyon, 6 feet west of road, in granite outcrop; aluminum tablet stamped "4306 Nogls"	4,319.123
Pantano, 3.25 miles south of, on ridge, 23 feet east of road, in granite bowlder outcrop; aluminum tablet stamped "3836 Nogls"	3,849.405
Pantano, 400 feet northeast of station, 12 feet east of warehouse, south side of road near plank fence; iron post stamped "3540 Nogls"	3,552.974
Pantano, in front of station; top of north rail	3,547.5

From Empire ranch southeast along highways to Elgin.

Cottonwood, 1 mile east of, 3 feet south of road, east slope of hill, west side of draw; iron post stamped "4529 Nogls"	4,542.170
Elgin, 4.5 miles northwest of, 80 feet south of road forks, 4 feet east of road, in granite outcrop; bronze tablet stamped "4926 Nogls"	4,938.809

From Elgin west and southwest along Southern Pacific R. R. to point near Sanford siding.

Elgin, 45 feet south of track, northwest corner of yard fence around section house; iron post stamped "4706 Nogls"	4,719.060
Elgin, 3.25 miles west of, 50 feet south of track, top of cut near wire fence; iron post stamped "4835 Nogls"	4,848.158
Sonoita, 1.5 miles east of, 210 feet southeast of milepost 1079, 50 feet south of track, near wire fence; iron post stamped "4777 Nogls"	4,790.068
Sonoita, 0.5 mile west of, 0.25 mile west of milepost 1081, in west end of north guardrail of bridge A; second bolt	4,819.26
Sonoita, 1.5 miles west of, at public-road crossing, 45 feet west of track; iron post stamped "4746 Nogls"	4,759.143
Milepost 1085, 0.25 mile west of, on bolt in south end of east cap of bridge B	4,550.75
Sonoita, 5 miles southwest of, between mileposts 1085 and 1086, point of ridge, 50 feet east of railroad, at curve D 10–No. 77, near wire fence, in limerock; aluminum tablet stamped "4512 Nogls"	4,525.677
Crittenden, 1.5 miles north of, 240 feet south of milepost 1089, at public-road crossing, 45 feet west of track; iron post stamped "4263 Nogls"	4,275.898
Crittenden, 200 feet south of station, 12 feet west of track, 1 foot east of southeast foundation stone under water tank; point on granite outcrop	4,194.16
Patagonia, 1.5 miles northeast of, in north end of west guardrail of bridge A; bolt	4,117.84
Patagonia, 100 feet east of station, 16 feet north of track; iron post stamped "4044 Nogls"	4,057.304
Milepost 1096, 20 feet north of, east end of steel bridge over Sonoita River, 5 feet south of track; point on stone wall	3,950.34
Milepost 1097, 200 feet east of, east end of steel bridge over Sonoita River, 5 feet south of track, in stone wall; aluminum tablet stamped "3891 Nogls"	3,904.076
Sanford, 1.8 miles east of, 4 feet north of track, at east end of steel bridge over Sonoita River; point on stone wall	3,820.84
Sanford, 1 mile east of, 2,100 feet east of milepost 1100, 120 feet east of bridge B, 8 feet north of track, in rock ledge; aluminum tablet stamped "3785 Nogls"	3,798.070

From Patagonia southeast along highways 4 miles.

Patagonia, 3 miles southeast of, 100 feet south of road forks, 10 feet west of road; iron post stamped "4223 Nogls"	4,236.212

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From point 8.5 miles north of Calabasas and 3 miles east of Santa Cruz River east along highway to steam pump, thence southeast to Southern Pacific R. R.

	Feet.
Santa Cruz, 3 miles east of, on flat ridge, 35 feet south of road, in blue limerock outcrop; aluminum tablet stamped "3645 Nogls"	3,658.281
Santa Cruz, 6.25 miles east of, in gap at head of canyon, 30 feet west of road, in granite rock; aluminum tablet stamped "3948 Nogls"	3,960.918
Salero steam pump, 0.8 mile west of, 700 feet north of old adobe houses, 200 feet east of canyon, 25 feet east of road, in limerock outcrop; aluminum tablet stamped "4127 Nogls"	4,139.813
Salero steam pump, 2.5 miles southeast of, top of ridge, 25 feet west of road; iron post stamped "4498 Nogls"	4,510.815
Salero steam pump, 4.5 miles southeast of, 40 feet east of draw, 10 feet west of road; iron post stamped "4360 Nogls"	4,373.259

From Canelo Pass north to Boyle ranch, thence east to point near Evans schoolhouse.

Boyle ranch house, 500 feet southeast of, 120 feet east of road forks, at fence corner; iron post stamped "5034 Nogls"	5,047.701

ARIVACA QUADRANGLE.

[Latitude 31° 30′–32°; longitude 111°–111° 30′.]

From point 3 miles northwest of Calabasas north to point 2 miles north of Marsh & Driscoll ranch.

Calabasas, 5.5 miles north of, west side of road, 3 feet north of gate entrance to Ohms ranch; iron post stamped "3321 Nogls"	3,334.201
Calabasas, 8.5 miles north of, in forks of road; iron post stamped "3279 Nogls"	3,292.397
Tubac, 1 mile south of, 75 feet west of road forks, at southeast corner of adobe house; iron post stamped "3222 Nogls"	3,235.486
Tubac, 2.25 miles north of, 7 feet east of road, 2 feet south of 18-inch leaning mesquite tree at angle in road to northwest; iron post stamped "3140 Nogls"	3,153.156
Tubac, 5.5 miles north of, 10 feet east of road, on slight ridge; iron post stamped "3096 Nogls"	3,109.280
The Junction, 1,500 feet south of, 75 feet east of ridge, 15 feet east of road, 1 foot north of fence; iron post stamped "3038 Nogls"	3,050.932
L. A. Smith ranch house, 2.8 miles north of, 6 feet west of road, 1 foot south of telephone pole; iron post stamped "2949 Nogls"	2,962.129
Marsh & Driscoll ranch, 2 miles north of, 40 feet east of main road, 20 feet west of loop in road, 1 foot southeast of telephone pole; iron post stamped "2909 Nogls"	2,922.134

From point 8.5 miles north of Calabasas east 2 miles.

Calabasas, 8.5 miles north of, in road forks, east side of river, 25 feet east of Tucson and Nogales public road; iron post stamped "3279 Nogls"	3,292.397

NOGALES QUADRANGLE.

[Latitude 31°–31° 30′; longitude 110° 30′–111°.]

From Nogales north along Southern Pacific R. R. to Calabasas, thence northeast to Sanford siding.

Nogales, International boundary monument 122; northeast corner of masonry base	3,864.77
Nogales, 1 mile north of, 200 feet of milepost 1119, in north end of west guardrail to bridge A; bolt	3,825.90

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	Feet.
Nogales, 3 miles north of, 700 feet north of milepost 1117, west side of road, 75 feet east of Maraposa ranch house; iron post stamped "3734 Nogls"	3,747.445
Nogales, 5 miles north of, 100 feet south of milepost 1115, in north end of east guardrail to bridge A; bolt	3,663.50
Nogales, 6 miles north of, 50 feet west of track, 10 feet north of gate, 500 feet south of milepost 1114; iron post stamped "3598 Nogls"	3,611.494
Calabasas, 60 feet north of station, 2 feet east of gate; iron post stamped "3433 Nogls"	3,446.611
Calabasas, 2.8 miles east of, east end of iron bridge over Sonoita River, north side of track, in top of stone wall; aluminum tablet stamped "3507 Nogls"	3,520.556
Milepost 1105, 400 feet west of; bolt in east end of south guardrail of bridge A	3,587.23
Walnut Grove ranch, 0.5 mile east of, east end of steel bridge over Sonoita River, north side of track, in top of stone wall; aluminum tablet stamped "3641 Nogls"	3,654.875
Milepost 1103, 0.25 mile west of, on east end of bridge over Sonoita River, on bolt in north end of steel cap	3,689.84

From Calabasas northwest along highway 2.5 miles.

Calabasas, 2.5 miles north of, at road forks, 2 feet west of northwest fence corner; iron post stamped "3377 Nogls"	3,390.339

From monument 122 near Nogales east along international boundary to monument 119. (See also connection at Lochiel at monument 112.)

Post 122, Nogales, top of masonry base (Boundary Commission elevation 3,851.37)	3,864.77
Post 121, Nogales (Boundary Commission elevation 3,995.40)	4,017.34
Post 120 (Boundary Commission elevation 4173.55)	4,193.78
Post 119 (Boundary Commission elevation 4095.47)	4,102.91

From point 4 miles southeast of Patagonia southeast along highway to Lochiel.

A. B. Sorrell ranch house, 500 feet east of, 75 feet east of road, in igneous rock outcrop; aluminum tablet stamped "4653 Nogls"	4,467.198
Hardshell store, 125 feet northwest of, 4 feet west of road; point on limestone rock	4,965.88
Hardshell store, 1.8 miles south of, 25 feet east of road, on side of hill, in limestone outcrop; aluminum tablet stamped "5241 Nogls"	5,254.842
Moury Mines, 2 feet south of road, 20 feet north of well, in 8-inch Spanish oak tree; nail	5,416.86
Moury Mines, 0.7 mile south of, 400 feet northeast of adobe house, 16 feet north of road, 5 feet north of 22-inch Spanish oak tree, in quartz rock; aluminum tablet stamped "5394 Nogls"	5,407.561
Washington, 0.2 mile north of, 15 feet east of road forks, on top of ridge; iron post stamped "5496 Nogls"	5,509.321
Washington, 2.5 miles east of, on narrow ridge, 2 feet south of road, in limerock outcrop; aluminum tablet stamped "5021 Nogls"	5,034.314
Lochiel, north side of road, in front of Chinese store, in post; spike	4,687.74

From Lochiel northeast along highway to Canelo Pass.

International boundary iron post 112, top of masonry base (Boundary Commission elevation 4,760.49)	4,777.295
Cameron ranch, 1.5 miles north of, top of ridge, 85 feet east of road, 75 feet west of wire fence, in limerock; aluminum tablet stamped "4830 Nogls"	4,843.499

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	Feet.
Little ranch house, 1 mile north of, top of north-south ridge, 15 feet southeast of road; iron post stamped "4997 Nogls"	5,010.697
Canelo Pass, 100 feet south of top in divide, 15 feet west of road, in granite outcrop; aluminum tablet stamped "5442 Nogls"	5,455.830

BENSON QUADRANGLE.

[Latitude 31° 30′-32°; longitude 110°-110° 30′.]

From Benson north to Boquilla Cattle Co.'s ranch.

Boquilla Cattle Co.'s ranch house, 800 feet west of, 200 feet southwest of flat-top butte, east side of road forks, 1 foot west of fence-corner post; iron post stamped "3500 Nogls"	3,512.008

From Benson south along El Paso & Southwestern R. R. to Fairbank.

Benson, in front of passenger station; top of south rail	3,581.3
Benson, intersection of Huachuca and Fourth Streets, northwest corner of Virginia Hotel; iron post stamped "3573 Nogls"	3,584.942
Benson, 3 miles southeast of, 100 feet west of track, 20 feet west of milepost 1034; iron post stamped "3541 Nogls"	3,552.929
Ts. 17 and 18 S., Rs. 20 and 21 E., corner of townships, 150 feet east of El Paso & Southwestern R. R. and 60 feet west of Southern Pacific R. R., east side of wagon road between crossings; iron post stamped "3583 Nogls"	3,595.996
Lands Crossing, 200 feet southeast of milepost 1040, 50 feet east of railroad track, 1 foot north of fence-corner post; iron post stamped "3644 Nogls"	3,655.863
Lands Crossing, 3.25 miles south of, 0.25 mile south of milepost 1043, 45 feet east of El Paso & Southwestern R. R., 50 feet west of Southern Pacific R. R., east edge of wagon road, 3 feet southeast of telegraph pole; iron post stamped "3707 Nogls"	3,718.906
Fairbank, 3.25 miles north of, 100 feet southwest of public road crossing, 50 feet west of track, 60 feet south of road forks, east side of road, 70 feet east of irrigation ditch, 2 feet south of fence-corner post; iron post stamped "3780 Nogls"	3,791.886
Fairbank, Southern Pacific R. R. track; top of rail	3,853

From Evans school east and northeast along highway to Tombstone.

Evans schoolhouse, 2 feet south of east entrance, 4 inches above ground, in foundation stone; aluminum tablet stamped "4927 Nogls"	4,940.371
Pyeatts ranch house, 150 feet south of, 45 feet south of road, in limestone outcrop; aluminum tablet stamped "5185 Nogls"	5,198.564
Pyeatts ranch, 3 miles east of, east side of slope, 30 feet north of road; iron post stamped "5061 Nogls"	5,074.579
Fort Huachuca, 2 feet northeast of wagon scales, 18 feet north of commissary; iron post stamped "5046 Nogls"	5,059.529
O. R. ranch house, at southeast corner, in foundation stone of south wall; aluminum tablet stamped "4605 Nogls"	4,618.493
O. R. ranch, 3.5 miles east of, 150 feet north of road, 1 foot south of quarter corner between secs. 25 and 30, T. 21 S., Rs. 20 and 21 E.; iron post stamped "4424 Nogls"	4,437.352
O. R. ranch, 6.8 miles northeast of, 2 feet north of road, opposite large mesquite tree in wash 500 feet south; iron post stamped "4232 Nogls"	4,245.532
Charleston, 20 feet east of El Paso & Southwestern R. R. track, 20 feet south of wagon road at crossing; iron post stamped "3957 Nogls"	3,970.565

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	Feet.
Charleston, 3.25 miles northeast of, top of ridge, 12 feet south of road; iron post stamped "4240 Nogls"	4,253.515
Tombstone, 2.25 miles southwest of, north side of hill, 40 feet south of road, in limestone outcrop; aluminum tablet stamped "4534 Nogls"	4,547.395
Tombstone, in north wall of county courthouse, 4 feet east of north entrance; aluminum tablet stamped "4526 Nogls"	4,539.359

Near Tombstone.

Tombstone, 0.9 mile east of, at junction of Tombstone-Gleeson and Tombstone-Bisbee roads, in signpost; spike, painted "4576"	4,576.63
Tombstone, 2 miles northeast of, at crossing of Tombstone-Gleeson road and Walnut Gulch, on south side of road, in tree; spike, painted "4386"	4,387.36
Tombstone, 2.8 miles east of, at crossing of Tombstone-Gleeson road and telephone line, on south side of road, in telephone pole; spike, painted "4540"	4,540.88

From Tombstone west along El Paso & Southwestern R. R. and Southern Pacific R. R. to point near Elgin.

Tombstone, 3 miles west of, 300 feet west of trestle over Tombstone Gulch, 23 feet south of railroad track, in granite outcrop; bronze tablet stamped "4200 Nogls"	4,213.257
Fairbank, 2.25 miles east of, 150 feet west of wagon road under trestle, 40 feet north of railroad, top of cut; iron post stamped "4016 Nogls"	4,029.255
Fairbank, 1 mile east of, 365 feet west of public road crossing, in east end of north guardrail of bridge; on bolt	3,925.90
Fairbank, north side of street, 15 feet east of street corner, in front of Montezuma Hotel; iron post stamped "3847 Nogls"	3,859.370
Fairbank, 3 miles west of, 680 feet west of milepost 1053, 40 feet west of iron bridge, 12 feet north of track, top of south wall of canyon, in granite rock; aluminum tablet stamped "3973 Nogls"	3,986.587
Milepost 1054, 1,000 feet west of, in east end of south guardrail to bridge A; on bolt	4,041.03
Brookline, 0.8 mile west of, midway between milepost 1056 and 1057, at public-road crossing, 15 feet north of track, east side of wagon road; iron post stamped "4111 Nogls"	4,123.199
Huachuca, 1,480 feet east of station, 50 feet north of track, at fence corner; iron post stamped "4253 Nogls"	4,266.296
Huachuca, in front of station; top of north rail	4,282.0
Huachuca, 3.25 miles west of, at old adobe town, 150 feet north of track, 2 feet south of gate and right of way fence; iron post stamped "4406 Nogls"	4,419.322
Huachuca, 5 miles west of, in northwest corner of iron bridge; at milepost 1066; on bolt	4,488.58
Huachuca, 6 miles west of, 50 feet north of track, 50 feet east of milepost 1067; iron post stamped "4522 Nogls"	4,535.292
Elgin, 2.8 miles east of, 35 feet south of track and road crossing, west edge of wagon road, at fence corner; iron post stamped "4617 Nogls"	4,630.180

From Charleston south along El Paso & Southwestern R. R. to point near Banning switch and return.

Culvert 2668, 600 feet east of, 600 feet east of Huachuca pipe line, 3 feet east of gate, in rock; aluminum tablet stamped "4000 Nogls"	4,013.190
Lewis Springs, west wall of pump house; aluminum tablet stamped "4019 Nogls"	4,031.987

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	Feet.
Lewis Springs, 3.5 miles south of, 200 feet southeast of cut, 100 feet south of old roadbed, in rock; aluminum tablet stamped "4194 Nogls"	4,207.444
Lewis Springs, 6.7 miles south of, 40 feet north of old roadbed, 550 feet west of large wash, in rock; aluminum tablet stamped "4359 Nogls"	4,372.057
Banning switch, 1.5 miles south of, 0.25 mile south of bridge 90, 50 feet north of old roadbed; iron post stamped "4368 Nogls"	4,381.441

From point near Banning switch west to point near Robinson ranch.

Banning switch, 2 miles north of, 40 feet south of road; chisel mark on sunken bowlder; mesquite tree near bowlder marked "U. S. G. S. B. M. 4520"	4,533.79
Robinson ranch, 1.4 miles west of, 15 feet south of forks in road, in granite bowlder 2 by 3 feet; bronze tablet stamped "4702 M. P. 92"	4,716.355
Robinson ranch, 100 yards south of house, 2 feet east of south gatepost; chisel mark on stone; post marked "U. S. G. S. B. M. 4811"	4,824.91

HEREFORD QUADRANGLE.

[Latitude 31° 15′–31° 30′; longitude 110°–110° 15′.]

From point near Banning switch southeast along El Paso & Southwestern R. R. to Naco Junction.

Packard, 3 miles north of, 390 feet north of bridge 94, 40 feet east of railroad, in lime bowlder; bronze tablet stamped "4489 M. P. 92"	4,503.221
Packard, 100 feet east of platform of station, 50 feet east of track, 150 feet east of railroad crossing, south end of switch; iron post stamped "4666 M. P. 92"	4,680.169

BISBEE QUADRANGLE.

[Latitude 31° 15′–31° 30′; longitude 109° 45′–110°.]

From International boundary monument 92 northeast along road to Don Luis, thence via El Paso & Southwestern R. R. to Bisbee, thence north-northeast and south along trail via Brewery Gulch and Sulphur Springs Valley road to International boundary monument 88.

Naco, 0.5 mile east of, International boundary monument 92, top of masonry corner	4,604.595
Naco, 0.5 mile north of, 60 feet north of large signboard, at forks of wagon road to Naco; iron post stamped "4538 M. P. 92"	4,552.766
Hull's Halfway House, 1 mile south of, at road crossing, 20 feet east of main road to Naco; iron post stamped "4868 M. P. 92"	4,882.531
Bisbee, 2.2 miles south of, railroad crossing at forks of roads, 10 feet west of railroad, 40 feet west of Bisbee-Naco road; bronze tablet stamped "5166 M. P. 92"	5,180.065
Bisbee, Cooper Queen Mining Co.'s store building, in northwest corner; bronze tablet stamped "5300 M. P. 92"	5,314.408
Bisbee, 0.7 mile north of Copper Queen Mining Co.'s store, in Brewery Gulch, north of road, in front of house No. 7, point of ledge; bronze tablet stamped "5383 M. P. 92"	5,397.291
Bisbee, 1.7 miles north of, divide between Bisbee and Sulphur Springs Valley and forks of trail, in conglomerate projecting ledge; bronze tablet stamped "5939 M. P. 92"	5,953.361
Forest ranch, 6.5 miles north of, forks of Sulphur Springs Valley-Dixie Canyon wagon road, 1.5 miles north of main road; iron post stamped "4272 M. P. 92"	4,286.353
Forest ranch, 2.5 miles northeast of, 20 feet north of road to Wilcox, north side of big wash; iron post stamped "4357 M. P. 92"	4,371.534

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	Feet.
Forest ranch, 3 miles south of, 20 feet west of road to Slaughter ranch and west of wash; iron post stamped "4354 M. P. 92"	4,368.358
Forest ranch, 6.5 miles south of, 0.25 mile north of lone buttes on flat, 10 feet east of road; iron post stamped "4284 M. P. 92"	4,298.354
Forest switch, 0.25 mile southwest of, 600 feet south of railroad, northeast corner of Slaughter ranch fence; iron post stamped "4237 M. P. 92"	4,251.436
From Bisbee west along Tombstone Road to point on El Paso & Southwestern R. R. 1.5 miles south of Banning switch, thence southeast via railroad to permanent bench mark 0.5 mile north of Naco.	
Bisbee, 2.8 miles west of, divide between Tombstone and Bisbee, forks of wagon road, 60 feet north of main road to Tombstone, projection of quartz ledge; bronze tablet stamped "6038 M. P. 92"	6,051.973
Cox ranch, 100 feet west of house, 12 feet north of wagon road, 50 feet north of corner of stone corral, granite bowlder 2 feet out of ground; bronze tablet stamped "5094 M. P. 92"	5,108.421
Naco Junction, 60 feet southwest of platform, between wagon road and railroad; iron post stamped "4674 M. P. 92"	4,688.308
From Bisbee south by road via Holbrook, Calumet and Arizona, Lowell, and Bisbee West mines to Don Luis.	
Calumet & Arizona mine, 200 feet northeast of "Irish Mag" shaft, 50 feet west of lime house, and 10 feet west of road, in limestone ledge; aluminum tablet stamped "5540 M. P. 92"	5,554.195
Gardner mine, 200 feet south of shaft, summit of divide between Gardner and Lowell, 10 feet east of wagon road, in limestone rock; aluminum tablet stamped "5373 M. P. 92"	5,387.522
Lowell mine, 1,000 feet south of shaft, summit of divide between Lowell and South Bisbee, 5 feet west of trail, in projection of limestone ledge; aluminum tablet stamped "5431 M. P. 92"	5,445.138
Bisbee West mine, 60 feet west of office and 90 feet north of wagon road, in projection of granite ledge; aluminum tablet stamped "5399 M. P. 92"	5,413.050
From Naco east along El Paso & Southwestern R. R. to Forest station.	
Naco, 0.75 mile east of, in base of milepost 242; spike, aluminum tag stamped "4582"	4,582.07
Naco, 1.75 miles east of, in base of milepost 241; spike, aluminum tag stamped "4607"	4,606.61
Naco, 2.75 miles east of, in base of milepost 240; spike, aluminum tag stamped "4648"	4,647.72
Osborn, 300 feet east of station, in west wall of brick section house, 1.5 feet above ground; bronze tablet stamped "4686"	4,686.223
Osborn, 1 mile east of station, 30 feet east of milepost 238, on north side of track, on east end of culvert, in guard rail; top of end bolt, painted "U.S.B.M.," aluminum tag stamped "4648"	4,648.634
Osborn, 2 miles east of station, 350 feet east of milepost 237, in base of east standard of rail rest; spike, aluminum tag stamped "4633"	4,633.15
Osborn, 3 miles east of station, at milepost 236, on north side of track, in base of section post; spike, aluminum tag stamped "4599"	4,599.32
Osborn, 3.3 miles east of station, 0.3 mile east of milepost 236, at west end of cut, on south side of track, 2 feet above ground, in rock; bronze tablet stamped "4585"	4,585.487
Osborn, 4 miles east of, 900 feet east of east end of tunnel, 1,200 feet west of Crook siding, at block signal 234.7, on north side of track, in southwest corner of foundation; top of bolt	4,537.6

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	Feet.
Crook siding, 0.7 mile east of, at milepost 234, in base of east rail rest; spike, aluminum tag stamped "4502"	4,501.86
Crook siding, 1.7 miles east of, at milepost 233, in base of west standard of rail rest; spike, aluminum tag stamped "4451"	4,451.572
Crook siding, 2.7 miles east of, 75 feet west of milepost 232, on south side of track, in top of concrete culvert coping; bronze tablet stamped "4401"	4,401.376
Crook siding, 3.7 miles east of, at milepost 231, in base of northeast standard of rail rest; spike, aluminum tag stamped "4355"	4,355.54
Junction siding, opposite switch standard to spur track; top of rail	4,329
Junction siding, 0.4 mile east of, at milepost 230, in northeast standard of rail rest; spike, aluminum tag stamped "4305"	4,305.49
Junction siding, 1.4 miles east of, at milepost 229, in base of west standard of rail rest; spike, aluminum tag stamped "4258"	4,258.16

Don Luis 30′ quadrangle, including Bisbee and Douglas 15′ quadrangles.

COCHISE COUNTY.

The elevations in the following list were determined by primary leveling. The bench marks are on closed circuits but depend upon a single unchecked line from Bisbee to sec. 36, T. 23 S., R. 25 E. That line formed part of a circuit which formerly appeared to close satisfactorily and had been adjusted between Boundary Monuments 92 and 88, but which now has a closure error of 1.9 feet due to the discovery of an error of 1.6 feet in the end of the line by leveling of 1913.

Orthometric corrections have been made and the whole corrected to accord with the 1912 adjustment of precise leveling.

The elevation at Bisbee is now taken to be 1.2 feet greater than that published in Bulletin 463.

The leveling was done in 1912 by Cornelius Schnurr.

NOTE.—The lists as now corrected make the following closures upon Boundary Commission elevations: Plus 14.40 feet at monument 92; plus 16.24 feet at monument 88; plus 9.20 feet at monument 84; and plus 12.87 feet at monument 1 near El Paso.

DON LUIS 30′ QUADRANGLE, INCLUDING BISBEE AND DOUGLAS 15′ QUADRANGLES.

[Latitude 31°–31° 30′; longitude 109° 30′–110°.]

From sec. 36, T. 23 S., R. 25 E., north and east along highway to Lamb school, thence north to sec. 24, T. 22 S., R. 26 E., thence southeast along El Paso & Southwestern R. R. and highway to boundary monument 84, thence west along El Paso & Southwestern R. R. to beginning of line.

	Feet.
Forest ranch, 6.5 miles south of, in NW. ¼ sec. 36, T. 23 S., R. 25 E., 0.25 mile northwest of lone buttes on flat, 800 feet east of road; iron post stamped "4284"	4,298.354
T. 23 S., R. 26 E., southwest corner of sec. 19; top of brace post 10 feet east of fence corner, marked "4163"	4,163.99
Potter's ranch house, 2,700 feet east of; spike in corner fence post, marked "4122"	4,122.94
Ritter's ranch house, 1.3 miles east of; spike in telephone pole 383, marked "4121"	4,122.03

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	Feet.
Ritter's ranch house, 2.5 miles southeast of, in center of sec. 28, T. 23 S., R. 26 E., spike in telephone pole 420, marked "4101"	4,101.95
White's ranch house, 0.6 mile west of; spike in telephone pole 450, marked "4081"	4,081.92
White's ranch house, 500 feet south by 400 feet east of; spike in fence post, marked "4071"	4,071.97
Douglas, 6.5 miles west by 2.5 miles north of, 2,300 feet south of northeast corner of sec. 26, T. 23 S., R. 26 E., at northeast corner of Lamb school yard (district 51); iron post stamped "4036"	4,037.854
T. 23 S., R. 26 E., northeast corner of sec. 26, 0.4 mile north of Lamb schoolhouse; spike in fence post, marked "4027"	4,028.03
T. 23 S., R. 26 E., northeast corner of sec. 25; spike in fence post, marked "4007"	4,008.00
T. 23 S., R. 26 E., southeast corner of sec. 13; spike in fence post, marked "3998"	3,999.19
T. 23 S., R. 26 E., northeast corner of sec. 13; spike in fence post, marked "3982"	3,983.49
T. 23 S., R. 26 E., 900 feet west of southeast corner of sec. 1, 0.6 mile northeast of Queen ranch house; spike in fence post	4,013.03
Douglas, 12 miles northwest of, 850 feet west of southeast corner of sec. 1, T. 23 S., R. 26 E.; iron post stamped "4013"	4,013.967
T. 23 S., R. 26 E., northeast corner of; spike in township corner post marked "4040"	4,041.18
T. 22 S., R. 26 E., northeast corner of sec. 36; spike in lone post marked "4066"	4,067.75
T. 22 S., R. 26 E., northeast corner of sec. 25; spike in fence corner post marked "4090"	4,091.36
T. 22 S., R. 26 E., northeast corner of sec. 25; spike in fence post 270 feet east of corner, marked "4092"	4,093.21
Douglas, 6.5 miles west by 9.5 miles north of, 2,300 feet west of northeast corner of sec. 25, T. 22 S., R. 26 E., on main road from Douglas to Courtland; iron post stamped "4081"	4,082.817
Spike in first telephone pole north of following described bench mark marked "4114"	4,115.35
T. 22 S., R. 27 E., at crossing of north line of sec. 30 and Courtland branch of El Paso & Southwestern R. R.; spike in telephone pole marked "4113"	4,114.52
Douglas, 10 miles northwest of, along Courtland branch of El Paso & Southwestern R. R., 7 poles south of milepost 227, on line between secs. 19 and 30, T. 22 S., R. 27 E.; iron post stamped "4115"	4,116.200
Courtland branch of El Paso & Southwestern R. R.; spike in third pole north of milepost 226, marked "4107"	4,108.06
Courtland branch of El Paso & Southwestern R. R.; spike in milepost 225, marked "4089"	4,090.08
Douglas, 7 miles northwest of, 1,200 feet south of milepost 224, on Courtland branch of El Paso & Southwestern R. R., at road crossing; iron post stamped "4076"	4,077.718
Courtland branch of El Paso & Southwestern R. R.; spike in milepost 223, marked "4057"	4,058.67
Milepost 222; spike marked "4047"	4,048.64
Douglas, 3.6 miles north of, at road crossing; top of rail, marked "4063"	4,063.93
Douglas, 3 miles north of, at intersection of line between secs. 23 and 26, T. 23 S., R. 27 E.; iron post stamped "4056"	4,057.309

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	Feet.
T. 23 S., R. 27 E.. northwest corner of sec. 36, at road crossing; top of rail marked "4048"	4,049.38
T. 23 S., R. 28 E., northwest corner of sec. 31; spike in corner post marked "4071"	4,072.16
T. 23 S., R. 28 E., southwest corner of sec. 29; spike in fence post 220 feet east of corner marked "4107"	4,108.85
Douglas, 4.2 miles northeast of, 1,300 feet west of northeast corner of sec. 32, T. 23 S., R. 28 E., at intersection of section line and El Paso & Southwestern R. R., 2 feet inside right-of-way fence; iron post stamped "4144".	4,145.502
Douglas, 3 miles northeast of, near milepost 214, on El Paso & Southwestern R. R. bridge; spike in south end of guardrail marked "4093"	4,094.45
Douglas, 1.6 miles northeast of water tank, at crossing of first section-line road east of Douglas and El Paso & Southwestern R. R.; top of rail marked "4066"	4,067.32
Douglas, 0.5 mile northeast of water tank, 100 feet west of deserted house, 1,410 feet north of 15th Street road; spike in fence post marked "4063".	4,064.62
Douglas, 2 miles southeast of water tank, at southeast corner of boundary monument 84; chiseled cross in concrete base (Boundary Commission elevation 4,110.23 feet)	4,119.430
Douglas, city water tank on 15th Street, in concrete base; aluminum tablet stamped "4024"	4,025.580
Douglas, at main entrance to El Paso & Southwestern R. R. station, in base of lamp-post, in vertical wall; aluminum tablet stamped "3979"	3,980.357
Douglas, 1 mile west of; spike in milepost 218 marked "3946"	3,947.28
White River, bridge over; top of rail	3,922.9
Milepost 219, opposite, at road crossing north of C. & A. smelter; top of rail marked "3931"	3,932.57
Calumet, in front of station; top of rail marked "3952"	3,953.3
Douglas, 3.4 miles west of, at road crossing; top of rail marked "3978"	3,979.76
Douglas, 4.4 miles west of, at road crossing; top of rail marked "4010"	4,010.96
Douglas, 6.5 miles west of, at intersection of line between secs. 11 and 12, T. 24 S., R. 26 E., and El Paso & Southwestern R. R., 2 feet inside railroad fence; iron post stamped "4074"	4,075.822
Forest station, 2.5 miles east of, at intersection of El Paso & Southwestern R. R. and line between secs. 10 and 11, T. 24 S., R. 26 E.; top of rail marked "4112"	4,112.98
Forest station, 1.5 miles east of, at intersection of El Paso & Southwestern R. R. and line between secs. 9 and 10, T. 24 S., R. 26 E., 30 feet east of culvert 2255; top of rail marked "4148"	4,149.69
Forest station, 0.5 mile east of, at intersection of El Paso & Southwestern R. R. and line between secs. 8 and 9, T. 24 S., R. 26 E.; top of rail, marked "4178"	4,179.00
Forest, in front of station; top of rail	4,192.7
Forest station, 1.5 miles west of, 600 feet south of old railroad bed along old wagon road; iron post stamped "4237"	4,251.436
Forest station, 2 miles west of, 100 feet south of railroad crossing; spike in fence post marked "4253"	4,254.40
Forest station, 2 miles northwest of, on Bisbee-Douglas highway, at east end of concrete bridge; top of girder marked "4260"	4,261.24

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From point near Forest Station south to boundary monument 88 (releveled twice, making a difference of 1.6 feet over previous line).

	Feet.
Lane to Hunt's ranch house and public road, junction of; spike in west gate-post marked "4271"	4,274.42
Hunt's ranch house, 200 feet north of; spike in fence post marked "4266"	4,269.39
Hunt's ranch house, 600 feet east of; spike in corner fence post marked "4266"	4,267.56
Forest station, 2.5 miles southwest of, 1 mile southeast of Hunt's ranch house; top of masonry on International Monument 88 (Boundary Commission value 4,316.90 ± 0.3)	4,333.14

Chiricahua, Cochise, Pearce, and San Simon quadrangles (Chiricahua National Forest).

COCHISE COUNTY.

The elevations in the following list are based upon the precise-level line along the Southern Pacific R. R. For additional elevations in the Cochise and San Simon quadrangles refer to precise-level list, pages 7–16. Additional elevations in the San Simon and Chiricahua quadrangles are given in list for New Mexico (Bulletin 464.) The leveling was done in Cochise, Chiricahua, and San Simon quadrangles in 1907 by T. A. Green and in 1914 by Cornelius Schnurr, and in Pearce quadrangle in 1907 by Green, in 1913 and 1914 by Schnurr, and in 1914 by S. E. Taylor. Leveling was done also in San Simon quadrangle in 1914 by S. H. Birdseye. Orthometric and rod corrections have been applied.

SAN SIMON QUADRANGLE.

[Latitude 32°–32° 30′; longitude 109°–109° 30′.]

From Bowie south along road to mouth of canyon 4.7 miles north of Apache Pass, thence northeast to San Simon.

	Feet.
Bowie, southeast corner of Solomon & Wickersham's store; iron post stamped "3748 H 111–1907"	3,759.956
Bowie, 3.41 miles south of, 15 feet west of road; iron post stamped "3817 1907"	3,828.943
Bowie, 6.44 miles south of, 50 feet east of road; iron post stamped "3930 1907"	3,941.348
Bowie, 9.21 miles south of, 10 feet east of road; iron post stamped "4167 1907"	4,178.785
Apache Pass, 5.01 miles northeast of, 1,400 feet east of mouth of canyon, south side of wagon road; aluminum tablet stamped "4453 1907"	4,465.139
Apache Pass, 8.01 miles northeast of, 1.24 miles northeast of T. J. Rigg ranch, west side of road, just south of stream crossing; iron post stamped "4303 1907"	4,315.348
Apache Pass, 10.81 miles northeast of, 4.04 miles northeast of T. J. Rigg ranch, west side of road; iron post stamped "4027 1907"	4,039.006
Apache Pass, 14 miles northeast of, 7.23 miles northeast of T. J. Rigg ranch, west side of road; iron post stamped "3810 1907"	3,822.168
Apache Pass, 16.81 miles northeast of, 10.04 miles northeast of T. J. Rigg ranch, west side of road; iron post stamped "3665 1907"	3,676.664
San Simon, 100 feet west of station, 75 feet north of track; iron post stamped "3601"	3,612.340
San Simon, 700 feet northwest of station, 558 feet north of track, in rock, San Simon triangulation station; aluminum tablet stamped "3598"	3,611.316

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From San Simon south along road to Eagle City, thence east to Cienaga, N. Mex.

	Feet.
San Simon, 2.82 miles south of, 30 feet east of road; iron post stamped "3641 1907"	3,652.678
San Simon, 5.6 miles south of, 100 feet south of dry stream crossing, 10 feet west of road; iron post stamped "3753 1907"	3,765.342
San Simon, 8.78 miles south of, 10 feet east of road; iron post stamped "3888 1907"	3,899.922
San Simon, 11.37 miles south of, 8 feet west of road, in large rock beside rock monument; aluminum tablet stamped "4074 1907"	4,086.278
San Simon, 14.25 miles south of, 5 feet west of road; iron post stamped "4260 1907"	4,271.889
San Simon, 16.72 miles south of, 1 mile northeast of Eagle City, 5 feet east of road, in large rock just south of rock monument; aluminum tablet stamped "4454 1907"	4,465.404
Eagle City, 1.5 miles east of, west side of road at forks; iron post stamped "4574 1907"	4,585.470
Eagle City, 5.38 miles northeast of, 8 feet north of road; iron post stamped "4229 1907"	4,241.339
Eagle City, 8.20 miles northeast of, 10 feet south of road; iron post stamped "4027 1907"	4,038.935

From Paramores ranch northwest to San Simon.

Cienaga, 3.06 miles north of, 0.56 mile north of Paramores ranch, 10 feet west of road; iron post stamped "3868 1907"	3,880.036
Cienaga, 6.32 miles northwest of, 3.82 miles northwest of Paramores ranch, 5 feet west of road, 75 feet east of San Simon River, in rock; aluminum tablet stamped "3796 1907"	3,807.839
Cienaga, 9.39 miles northwest of, 0.96 mile northwest of large adobe corral, 40 feet west of mesquite bush, 20 feet east of road, in rock; aluminum tablet stamped "3744 1907"	3,755.482
Cienaga, 13.25 miles northwest of, 9.75 miles northwest of Paramores ranch, 3.82 miles northwest of large adobe corral, 10 feet east of road; iron post stamped "3699 1907"	3,711.056
San Simon, 5.6 miles southeast of, 16.64 miles northwest of Cienaga, 7.21 miles northwest of large adobe corral, 13.14 miles northwest of Paramores ranch, 10 feet east of road; iron post stamped "3647 1907"	3,658.762
San Simon, 3.1 miles southeast of, 19.12 miles northwest of Cienaga, 75 feet northeast of northeast corner of old adobe ruin, 40 feet west of road, in large rock; aluminum tablet stamped "3616 1907"	3,628.222

From point near Shaw ranch north along road to Apache Pass, thence to a point 3.7 miles northeast of Apache Pass (leveled twice).

Shaw ranch, 3 miles northwest of, 0.3 mile south of Amalong's ranch, at southwest fence corner, in corner post; spike, painted "5034"	5,036.99
Shaw ranch, 3.5 miles northwest of, in southwest corner of Amalong's ranch, 25 feet south of sharp bend where road turns north, north side of dry wash; iron post stamped "5000"	5,003.051
Riggs ranch, 0.43 mile southeast of, north side of road, in fence corner post; spike, painted "4949"	4,952.78
Riggs ranch house (home ranch), in front of; road	4,930.6
Riggs ranch, 0.67 mile northwest of, on south side of road, in fence post; spike, painted "4909"	4,912.22
Shaw ranch, 7 miles northwest of, 2.1 miles northwest of Riggs ranch, 100 feet north of old branch road to west, east side of wagon road; iron post stamped "4853"	4,855.833

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	Feet.
Riggs ranch, 3.1 miles northwest of, at crossing of road and telephone line, in telephone pole, 50 feet east of road; spike painted "4870"	4,872.84
Riggs ranch, 4.2 miles northwest of, on top of spur 50 feet east of road; bowlder by rock cairn, painted "4887"	4,890.63
Riggs ranch, 5 miles northwest of, 300 feet south of crossing of road and dry sand wash, west side of road; iron post stamped "4905"	4,908.700
Riggs ranch, 6 miles northwest of, 100 feet west of road; rock painted "4921"	4,924.10
Riggs ranch, 7.1 miles northwest of, at intersection of old road and east-west fence line, in fence post; spike painted "4904"	4,907.54
Riggs ranch, 8.9 miles northeast of, 1.5 miles southeast of Shafer ranch, west side of old road; iron post stamped "4953"	4,956.196
Shafer ranch, 0.6 mile southeast of, 50 feet east of old road; granite ledge painted "4970"	4,973.69
Apache Pass, 150 feet east of gap, north side of road, just south of ledge of rock; tablet stamped "5112"	5,115.182
Apache Pass, 0.7 mile east of, 20 feet south of road on spur, in telephone pole; spike painted "5020"	5,023.30
Apache Pass, 1.6 miles east of, 25 feet east of road at prominent bend; top of bowlder painted "4867"	4,870.24
Apache Pass, 2.3 miles east of, at branch road south to old Fort Bowie, 30 feet south of road, north side of stream bed; aluminum tablet stamped "4676"	4,679.518
Apache Pass, 3 miles east of, at junction of two canyons and branch road south, east side of road, by rock cairn; rock painted "4551"	4,554.07
Apache Pass, 3.7 miles northeast of, 1,400 feet east of mouth of canyon, south side of old wagon road; aluminum tablet stamped "4453" (1912 Adj. datum)	4,465.139

From San Simon north along highway to Posey's ranch.

San Simon, 0.96 mile north of, on east side of road, at fence corner, in base of corner post; spike, aluminum tag stamped "3600"	3,600.44
San Simon, 1.73 miles north of, at Mr. Lukesh's ranch; top of west ring of elbow of 4-inch iron pipe to artesian well	3,571.71
San Simon, 2.92 miles north of, at Triangle Cattle Co.'s home ranch, on west side of road, in base of end post of wing to corral; spike, aluminum tag stamped "3554"	3,553.71
San Simon, 4.5 miles north of, 30 feet west of Triangle Cattle Co.'s east windmill, on south fence line of small corral built around water hole; iron post stamped "3548 1"	3,548.243
San Simon, 7.34 miles north of, 2.8 miles northeast of Triangle Cattle Co.'s west mill, at second-class road crossing over San Simon Creek, on south side of creek, 210 feet from bank, 75 feet east of road, at foot of greasewood bush; iron post stamped "3508 2"	3,508.042
San Simon, 11.9 miles northwest of, 500 feet west of San Simon Creek, at west end of long open spot lying at mouth of gulch which rises at Triangle Cattle Co.'s west mill, at bend to north of San Simon Creek, on edge of bushy strip; iron post stamped "3455 3"	3,455.423
San Simon, 14 miles northwest of, 2.5 miles south of Posey's ranch, at top of sharp rise in road on east side of San Simon Creek, 15 feet west of road; iron post stamped "3440 4"	3,439.503
Posey's ranch, 0.5 mile west of, at southwest corner of small corrall, 3 feet west of corner post, on fence line; iron post stamped "3409 5"	3,408.695

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CHIRICAHUA QUADRANGLE.

[Latitude 31° 30′–32°; longitude 109°–109° 30′.]

From point 2 miles east of Kirkpatrick, east along highway to point near Shaw ranch, thence to a point 1.5 miles northwest of Shaw ranch (leveled twice).

	Feet.
Kirkpatrick ranch, 3.4 miles east of, north side of old road; iron post stamped "4808"	4,811.081
Kirkpatrick ranch, 4.6 miles east of, at intersection of old road with north-south fence, in fence post; spike, painted "4902"	4,904.70
Kirkpatrick ranch, 5.8 miles east of, 2.7 miles west of Shaw ranch, in gate post; spike, painted "4989"	4,991.90
Kirkpatrick ranch, 7.3 miles east of, at forks at foot of hill on which is triangulation monument (Riggs), south side of road east of forks; iron post stamped "5121"	5,124.540
Shaw ranch, about 1.1 miles west of, 100 feet northeast of large reservoir, in corner post; spike painted "5214"	5,217.32
Shaw ranch, about 0.5 mile northwest of, at forks of old road, north side of creek, 20 feet north of old road; iron post stamped "5291"	5,294.168
Shaw ranch, 1.5 miles northwest of, 400 feet east of Pointer's house, in fence post; spike, painted "5177"	5,180.40

From Eagle City south to Paradise, thence southeast to Rodeo.

East Eagle City, 3.05 miles south of, 30 feet west of road, at sharp bend on top of hill leading to Turkey Creek, beside rock monument, in rock; aluminum tablet stamped "4969 1907"	4,980.510
Paradise, at fork of road just north of town, east side of creek, 15 feet south of telephone pole, 50 feet west of store of J. S. Cochran, on rock; aluminum tablet stamped "5386 1907"	5,397.673
Paradise, 2.81 miles southeast of, 8 feet south of road, 20 feet west of dry stream crossing, 8 feet north of live-oak tree, in bowlder; aluminum tablet stamped "5128 1907"	5,139.809
Portals, 1,123 feet east of post office, 125 feet northeast of unoccupied dwelling 20 feet north of road, 20 feet east of telephone pole, in large rock; aluminum tablet stamped "4761 1907"	4,773.375
Portals, 3.37 miles southeast of, 10 feet east of road, in rock flush with ground; aluminum tablet stamped "4381 1907"	4,393.002
Portals, 7.21 miles southeast of, 100 feet west of road, in northeast corner of fence around windmill and water tank, in rock; aluminum tablet stamped "4101 1907"	4,112.812

COCHISE QUADRANGLE.

[Latitude 32°–32° 30′; longitude 109° 30′–110°.]

From Cochise south along Arizona Eastern R. R. to Servoss.

Cochise, 1.5 miles west of station, 100 feet south of milepost 1061; iron post stamped "147 1907"	4,278.450
Cochise, in front of station; top of rail	4,226.2
Cochise, 2.27 miles southeast of, 80 feet west of track, 350 feet south of old road crossing, 8 feet south of fence corner; iron post stamped "4179 1907"	4,190.864
Cochise, 4.57 miles southeast of, 85 feet west of railroad, 3 feet west of fence; iron post stamped "4178 1907"	4,190.165
Servoss, 100 feet east of track, 40 feet north of section house, 115 feet northeast of water tank; iron post stamped "4169 1907"	4,180.596

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PEARCE QUADRANGLE.

[Latitude 31° 30′–32°; longitude 109° 30′ –110°.]

From Servoss southeast along Arizona Eastern R. R. to Pearce.

	Feet.
Cochise, 10.62 miles southeast of, 750 feet south of road crossing, 90 feet west of track, 10 feet east of wagon road, on west side of fence; iron post stamped "4235 1907"	4,247.297
Cochise, 13.7 miles southeast of, 100 feet west of track, west side of fence; iron post stamped "4308 1907"	4,319.610

At mouth of Dixie Canyon on an adjusted line from Bisbee.

Dixie Canyon, at mouth of, on west side of watercourse, at forks of trail; iron post stamped "4604 M. P. 92"	4,618.285

From Pearce east along highway to Kirkpatrick ranch (leveled twice).

Pearce, 0.37 mile east of station, 117 feet east of south switch, 160 feet east of Eisenheart's yard; iron post stamped "4374"	4,374.778
Pearce, in front of station; top of rail	4,393.5
Pearce, 0.90 mile east of, southeast corner of pasture fence, in corner post; spike, painted "4356"	4,356.73
Pearce, 2 miles east of, 25 feet south of road; top of bowlder by cairn, painted "4328"	4,329.16
Pearce, 3.3 miles east of, north side of road, 200 feet west of old branch road to north; iron post stamped "4316"	4,316.856
Pearce, 4.6 miles east of, 25 feet south of road, by rock cairn; bowlder painted "4330"	4,331.28
Pearce, 5.5 miles east of, 30 feet north of road, set in ground; bowlder painted "4285"	4,285.76
Pearce, 6.1 miles east of, 2 feet south of road; iron post stamped "4279"	4,279.477
Pearce, 7.1 miles east of, 0.9 mile west of West Well ranch, 30 feet south of road, by rock cairn; bowlder painted "4317"	4,318.192
West Well ranch, branch road to	4,328.18
West Well ranch, 0.30 mile north of, northwest corner of pasture fence, in corner post; spike, painted "4302"	4,303.25
Pearce, 8.8 miles east of, 0.94 mile east of West Well ranch, on north side of old wagon road, 1,600 feet southeast of C. D. Bush ranch house; iron post stamped "4308"	4,309.432
West Well ranch, 1.7 miles northeast of, 200 feet southwest of quarter corner between secs. 26 and 35; spike in fence post, painted "4319"	4,319.63
West Well ranch, 3.6 miles northeast of, T. 17 S., R. 26 E., southeast corner of sec. 24; iron Land Office post stamped "4347"	4,348.20
Pearce, 12.4 miles east of, 4.5 miles east of West Well ranch, on north side of wagon road; iron post stamped "4367"	4,369.981
Young ranch, east side of, at crossings of old road and east line fence, in fence post; spike, painted "4416"	4,419.35
Kirkpatrick ranch, 3 miles west of, 700 feet north of southwest corner of sec. 15, east side of road, in fence post; spike, painted "4461"	4,463.89
Pearce, 15.5 miles east of, 7.6 miles east of West Well ranch, in Jerdin's pasture, north side of old road; iron post stamped "4477"	4,479.646
Jerdin's ranch, northeast corner of, SE. ¼ sec. 15, in brace to corner post; spike, painted "4510"	4,513.09
Kirkpatrick ranch, 1 mile west of, south side of road, northwest corner of fence, in corner post; spike, painted "4564"	4,567.06

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	Feet.
Pearce, 18.6 miles east of, 10.6 miles east of West Well ranch, 100 feet northwest of Kirkpatrick ranch house (Halfway station); iron post stamped "4616"	4,618.721
Kirkpatrick ranch, 1.1 miles east of, south side of road; top of rock, painted "4659"	4,661.67
Kirkpatrick ranch, 2 miles east of, south side of old road; top of rock, painted "4715"	4,717.80

From point 4 miles northeast of Tombstone east along highway to Courtland, thence north to Pearce.

Tombstone, 4 miles northeast of, at Y road southeast to Reeves ranch; iron peg, painted "4598"	4,599.55
Tombstone, 4 miles northeast of, at branch road southeast to Reeves ranch, 80 feet east of junction of road; iron post stamped "4598"	4,599.367
Tombstone, 4.8 miles northeast of, 50 feet north of road, by rock cairn; top of granite bowlder, painted "4650"	4,651.51
Tombstone, 5.8 miles northeast of, 50 feet south of road, by rock cairn; top of granite bowlder, painted "4725"	4,726.08
Tombstone, 6.3 miles northeast of, quarter corner between sections, 30 feet south of road; top of corner stone, painted "4767"	4,767.98
Tombstone, 7.5 miles northeast of, 1,300 feet southwest of intersection of Tombstone-Gleeson road and South Pass gulch, on top of spur, 60 feet south of road; iron post stamped "4846"	4,847.581
Tombstone, second crossing of South Pass gulch; middle of road, marked "4829	4,830.5
Tombstone, 8.4 miles northeast of, 30 feet north of road, beside rock cairn; top of granite bowlder painted "4875"	4,875.72
Tombstone, 9.3 miles northeast of, 0.1 mile northeast of quarter corner between secs. 25 and 36, at northwest corner of pasture, in corner fence post; spike, painted "4947"	4,947.93
Tombstone, 10.3 miles northeast of, at junction of Tombstone-Gleeson and South Pass roads, 200 feet south of road, in tree; spike painted "5019"	5,019.81
Tombstone, 10.3 miles northeast of, 8 miles southwest of Gleeson, at junction of Tombstone-Gleeson and South Pass roads, 50 feet north of junction; iron post stamped "5024"	5,025.105
Tombstone, 11 miles northeast of, 0.9 mile east of old South Pass road, 30 feet south of road; granite bowlder painted "5093"	5,093.86
Tombstone, 12 miles northeast of, 6.3 miles southwest of Gleeson, at top of dugway over spur, 50 feet south of road; granite bowlder painted "5201"	5,201.94
Gleeson, 5.5 miles southwest of, 0.3 mile east of driveway to Kendall Bar Circle ranch, by corner post; iron peg, painted "5176"	5,177.62
Gleeson, 4.2 miles southwest of, 1.6 miles east of Kendall Bar Circle ranch, on flat, 600 feet west of large drain crossing, 40 feet south of road; iron post stamped "5111"	5,112.105
Gleeson, 3.2 miles southwest of, 20 feet north of road; granite bowlder painted "5077"	5,078.26
Gleeson, 2.3 miles southwest of, branch road to south, 60 feet north of junction; granite bowlder painted "5143"	5,144.54
Gleeson, 1.2 miles southwest of, at southeast corner of fence, in corner post 40 feet north of road; spike, painted "5091"	5,092.28
Gleeson, in front of white stone building (B. A. Taylor store), 25 feet north of entrance; aluminum tablet stamped "4922"	4,923.208

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	Feet.
Gleeson, 0.3 mile northeast of, at switch to Leonard copper mine; point of frog, painted "4985"	4,985.66
Gleeson, 1.5 miles northeast of, along Arizona Eastern R. R., in fourth telephone pole north of milepost 33; spike, painted "4825"	4,825.65
Gleeson, 2 miles northeast of, at crossing of railroad and large gulch, at east end of guardrail on bridge; bolthead, painted "4775"	4,775.82
Gleeson, 3 miles northeast of, 1 mile south of Courtland, at crossing of Gleeson-Courtland road and Arizona Eastern R. R., in crossing post; spike, painted "4695"	4,696.07
Courtland, in front of El Paso & Southwestern R. R. station; top of rail, painted "4676"	4,677
Courtland, at corner of Third Street and C Avenue, on northwest corner, in telephone pole; spike, painted "4715"	4,715.57
Courtland, at southeast corner of Third Street and C Avenue, in large granite bowlder; aluminum tablet stamped "4719"	4,719.659
Courtland, on divide between south and middle Courtland, 10 feet east of road, in telephone pole; spike, painted "4865"	4,865.93
Middle Courtland, opposite Germania mine, 10 feet south of road, on granite ledge, painted "4784"	4,795.38
Courtland, 600 feet southeast of mine, at road crossing; top of rail	4,793.6
Courtland, north end of, at junction of Courtland-Pearce road and Courtland-Valley road, at prominent bend in telephone line, 25 feet east of road, in granite ledge; bronze tablet stamped "4725"	4,725.566
Courtland, 1 mile north of, on first divide, at fence corner, 20 feet west of road, in telephone pole; spike, painted "4736"	4,737.21
Courtland, 2 miles north of, on divide 1,700 feet west of Antelope peak, 30 feet west of road, in corner fence post; spike, painted "4701"	4,701.79
Courtland, 3 miles north of, east side of road; iron post stamped "4624"	4,625.36
Courtland, 4 miles north of, 20 feet east of road, by rock cairn; top of rock, painted "4613"	4,614.01
Pearce, 3.2 miles south of, 20 feet west of road, by rock cairn; top of rock, painted "4572"	4,572.94
Pearce, 2.4 miles south of, 30 feet east of road; iron post stamped "4533"	4,533.791
Pearce, 1.3 miles south of, west side of road, by rock cairn; top of rock, painted "4485"	4,485.55
Pearce, 1.2 miles south of, at east end of ridge, 50 feet west of road, by rock cairn; top of rock, painted "4439"	4,439.64
Pearce, south edge of, at intersection of Pearce-Courtland road and telephone line, in third telephone pole south; spike, painted "4409"	4,409.63

From Courtland south along El Paso & Southwestern R. R. to point 10 miles north of Douglas (leveled twice between Caliente and south end).

Courtland station on Arizona & Eastern R. R., 1,000 feet southeast of; top of southeast bolt of switch lock, marked "4668"	4,668.76
Kelton, 2 miles west of, at second-class road crossing, in warning post; railroad spike, marked "4485"	4,485.69
Kelton, 1 mile west of, south side of railroad track, in base of post painted "Yard Limit"; railroad spike marked "4359"	4,359.7
Kelton station, Arizona & Eastern R. R. crossing with El Paso & Southwestern R. R.; top of rail marked "4298"	4,299
Kelton, in southwest concrete abutment of water tank; aluminum tablet stamped "4300"	4,300.839

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	Feet.
Kelton, 0.4 mile southeast of, in east rail rest at milepost 246; railroad spike marked "4263"	4,263.62
Kelton, 1.4 miles southeast of, in west rail rest at milepost 245; railroad spike marked "4192"	4,192.69
Kelton, 2.4 miles southeast of, in west rail rest at milepost 244; railroad spike marked "4170"	4,170.51
Caliente, 50 feet west of station, 6 feet north of telephone pole, 1,000 feet south of point of curve of railroad track, in concrete post; aluminum tablet stamped "4171"	4,171.512
Caliente, 0.4 mile southeast of, in base of north rail rest at milepost 243; railroad spike, marked "4167"	4,168.03
Caliente, 1.4 miles southeast of, in base of south rail rest at milepost 242; railroad spike, marked "4162"	4,163.53
Caliente, 2.4 miles southeast of, in north rail rest at milepost 241; railroad spike, marked "4150"	4,151.16
Elfrida, 50 feet northwest of railroad crossing with east-west public road, 800 feet north of milepost 240, 600 feet south of point of switch, in concrete post; aluminum tablet stamped "4142"	4,142.746
Elfrida, 1.1 miles southeast of, in north rail rest at milepost 239; railroad spike, marked "4134"	4,135.38
Elfrida, 2.1 miles southeast of, in north rail rest at milepost 238, at point of curve; railroad spike, marked "4134"	4,134.70
Elfrida, 3 miles southeast of, 50 feet northwest of railroad crossing with east-west public road, in concrete post; aluminum tablet stamped "4131"	4,132.510
McNeal, 1.4 miles north of, in south rail rest at milepost 236; railroad spike, marked "4149"	4,149.70
McNeal, 0.4 mile north of, in base of south rail rest at milepost 235; railroad spike, marked "4159"	4,160.16
McNeal, at section house; top of rail	4,162.4
McNeal, 50 feet southwest of road crossing, 300 feet south of railroad station, in concrete post; aluminum tablet stamped "4163"	4,164.175
McNeal, 0.5 mile south of, in north rail rest at milepost 234; railroad spike, marked "4157"	4,158.52
McNeal, 1.5 miles south of, in base of north rail rest at milepost 233; railroad spike, marked "4161"	4,162.33
McNeal, 2.5 miles south of, in south rail rest at milepost No. 232; railroad spike, marked "4162"	4,162.87
McNeal, 3.5 miles south of, at corner of secs. 35 and 36, 1 and 2, Tps. 21 and 22 S., R. 26 E., 5 feet east of center of railroad track at crossing; iron post stamped "4169"	4,170.415
McNeal, 4.5 miles south of, in north rail rest at milepost 230; railroad spike, marked "4164"	4,165.01
McNeal, 5.5 miles south of, on west side of track, 210 feet north of cattle guard, 5 feet south of milepost 229, in concrete post; aluminum tablet stamped "4147"	4,147.770
McNeal, 6.5 miles south of, in north rail rest at milepost 228; railroad spike, marked "4135"	4,135.86
Douglas, 10 miles northwest of, along Courtland branch of El Paso & Southwestern R. R., 7 poles south of milepost 227, on line between secs. 19 and 30, T. 22 S., R. 27 E.; iron post stamped "4115"	4,117.404

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Duncan and Morenci quadrangles.

GRAHAM AND GREENLEE COUNTIES.

The elevations in the following list are based on heights of bench marks in adjacent quadrangles. The leveling in Morenci and Duncan quadrangles was done in 1900 by J. T. Stewart and Thomas Winsor and in 1902–3 by Chester Irvine. Additional leveling was done in 1912–13 in Morenci quadrangle by R. R. Monbeck, and in Duncan quadrangle in 1914 by S. H. Birdseye. Orthometric and rod corrections have been applied in the latter work.

DUNCAN QUADRANGLE.

[Latitude 32° 30′–33°; longitude 109°–109° 30′.]

From point 7 miles east of Solomonsville northeast to point 6 miles southeast of Clifton.

	Feet.
Solomonsville, 8.5 miles northeast of, on south side of road, at junction with abandoned road at bend, 120 feet southwest of point where telephone line crosses road; iron post stamped "3400 Phnx"	3,399.837
Solomonsville, 12 miles northeast of, in forks of road, 2.5 miles southwest of tollgate; iron post stamped "3706 Phnx"	3,705.652
Solomonsville, 14.5 miles northeast of, at southeast corner of gatekeeper's house on north side of road, 40 feet east of tollgate; iron post stamped "4090 Phnx"	4,090.098
Coronado, 11.5 miles southwest of, on southeast side of road, opposite brown cliffs, 3 miles east of tollgate; in top of large sloping pink rock; aluminum tablet stamped "4394 Phnx"	4,394.126
Coronado, 8.25 miles southwest of, 7 feet north of road at summit of pass over Peloncillo range; iron post stamped "4804 Phnx"	4,803.596
Coronado, 5.8 miles southwest of, 10 feet southeast of road opposite gulch from southeast, in top of malpais rock; aluminum tablet stamped "4386 Phnx"	4,386.197
Coronado, 2.5 miles southwest of, northwest side of road on rocky ridge, in top of ledge; aluminum tablet stamped "4037 Phnx"	4,036.929
Coronado, on east side of road near warning sign, 40 feet south of Arizona & New Mexico Ry. track, 50 feet northeast of Coronado stage station; iron post stamped "3451 Phnx"	3,450.920
Arizona & New Mexico Ry. crossing; top of rail	3,448.4
Gila River, bed of, at ford	3,429.9
Coronado, 3 miles northeast of, 15 feet south of point where road begins steep descent to Rattlesnake wash; iron post stamped "3816 Phnx"	3,815.565
Clifton, 6.5 miles southeast of, on north side of road at top of short steep hill, about 0.5 mile southwest of Phillips ranch; iron post stamped "4059 Phnx"	4,058.497

From Clifton south along Arizona & New Mexico Ry. to Guthrie.

Clifton, 5.5 miles south of, 35 feet west of main track, 250 feet south of north head block at north siding, in top of embedded bowlder; aluminum tablet stamped "3798 Phnx"	3,797.631
Guthrie, 2.5 miles northwest of, 500 feet southeast of milepost 9, 20 feet southwest of and 8 feet above track; aluminum tablet stamped "3588 Phnx"	3,588.059
Guthrie, northeast corner of section yard, 130 feet south of station; iron post stamped "3415 Phnx"	3,414.792

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From Coronado south to Sheldon, thence west via Ash Peak Spring to Solomonsville.

	Feet.
Coronado, 4.5 miles southeast of, 13 feet southwest of track, on curve near mouth of York Canyon, in top of ledge; aluminum tablet stamped "3502"	3,502.151
Sheldon, 4.2 miles northwest of, 20 feet east of a trestle under which a wagon trail passes; iron post stamped "3520 Phnx"	3,519.943
Sheldon, 75 feet north of road crossing at station platform, 60 feet west of track; iron post stamped "3570 Phnx"	3,569.520
Sheldon, 3.3 miles southwest of, 25 feet south of road, near point where road leaves gulch and crosses small divide; iron post stamped "3926 Phnx"	3,925.836
Ash Peak Spring, 150 feet northeast of, 125 feet northeast of road; iron post stamped "4184 Phnx"	4,184.044
Ash Peak Spring, 2.3 miles west of, summit of divide, 25 feet north of road; marked "4398 Phnx"	4,397.846
Ash Peak Spring, 5.7 miles west of, 15 feet north of road; iron post stamped "4117 Phnx"	4,116.902
Ash Peak Spring, 8.9 miles west of, 20 feet north of road, 300 feet north of ravine; iron post stamped "3865 Phnx"	3,864.964
Ash Peak Spring, 11 miles west of, 20 feet north of road, west bank of ravine; iron post stamped "3706 Phnx"	3,705.914
Ash Peak Spring, 14 miles west of, 20 feet north of road; iron post stamped "3481 Phnx"	3,481.441
Ash Peak Spring, 17.1 miles west of, 20 feet north of road, west bank of ravine; iron post stamped "3295 Phnx"	3,295.051

From Sheldon southeast along railroad to Duncan, thence along highway northeast 8.6 miles.

Sheldon, 75 feet north of road crossing at station platform, 60 feet west of track; iron post stamped "3570 Phnx"	3,569.520
Sheldon, 3.4 miles east of, 50 feet northwest of Arizona & New Mexico Ry. bridge 95, 12 feet southwest of railroad fence corner; iron post stamped "3598 Phnx"	3,598.042
Sheldon, 4.2 miles east of, railroad bridge 100; top of south rail	3,607.29
Sheldon, 5.8 miles east of, 40 feet west of Ash Peak Spring road crossing, in fence post; railroad spike	3,621.15
Duncan, 100 feet northwest of Burtcher residence; iron post stamped "3643 Phnx"	3,643.134
Duncan, 0.8 mile north of, north gate post to ranch; wire nail near ground	3,660.91
Duncan, 3.3 miles south of, 30 feet east of road on side of small hill, stone monument beside bowlder; chiseled square on bowlder	3,847.00
Duncan, 5 miles north of, 20 feet west of road, on sunken bowlder; chiseled square	4,023.42
Duncan, 8.6 miles north of, 10 feet west of road, on stone; chiseled square	4,593.27

Southeast of Duncan.

Arizona-New Mexico boundary post, marked "No. 296 32° 11′ 30″ N. L.," 48 feet east of wagon road; iron post stamped "3736 Phnx"	3,736.261
Day ranch, 0.25 mile north of, 1.8 miles east of end of ridge, 10 feet north of road, 40 feet north of large ditch; iron post stamped "3695 Phnx"	3,695.255

From Posey's ranch northwest along road to Bailey's well.

Posey's ranch, 3.8 miles northwest of, on west side of road, 20 feet south of large dagger plant; iron post stamped "3388 6"	3,388.253
Posey's ranch, 6.8 miles northwest of, on small rise at south end of open grassy spot, on south side of road; iron post stamped "3374 7"	3,373.606

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	Feet.
Posey's ranch, 9.5 miles northwest of, on west side of Gold Gulch, 100 feet above small cabin, just opposite point where road from east crosses valley, on top of small knoll, on east side of road; iron post stamped "3421 8"	3,420.496
Gold Gulch, at mouth of, at adobe house, in northwest corner of floor of porch; copper bolt, aluminum tag stamped "3369"	3,369.04
Tanque, 4.6 miles southeast of, at Burckett's ranch, at northwest corner of fence around house; iron post stamped "3319 9"	3,319.05
Tanque, 2.5 miles east of, at Bailey's well, in 6 by 8 inch lumber base of windmill, 10 inches west of southwest upright; copper bolt, aluminum tag stamped "3276"	3,275.48

MORENCI QUADRANGLE.

[Latitude 33°–33° 30′; longitude 109°–109° 30′.]

From Clifton southeast up Ward Canyon.

Clifton, southeast corner of post office and library building; iron post stamped "3465 Phnx"	3,464.965
Clifton, in front of station; top of rail	3,455.8
Clifton, 4.5 miles southeast of, in top of embedded red bowlder, 20 feet northeast of road at summit of hill, 600 feet east of telephone mile board 34; aluminum tablet stamped "4172 Phnx"	4,171.739

From Clifton northwest along wagon road to Morenci, thence north via Longfellow mine and Chase Creek to Metcalf.

Clifton, 2.3 miles west of, north side of Chase Creek, 0.5 mile east of stone house, edge of road at foot of hill, in white rock 2 by 3 feet and 12 inches high; aluminum tablet stamped "3703 Phnx"	3,702.577
Clifton, 3.5 miles northwest of, top of east ridge on Clifton-Morenci wagon road, 75 feet north of fork of road, in white rock 2 by 3 feet and 12 inches high; aluminum tablet stamped "4316 Phnx"	4,315.879
Morenci, 0.9 mile southeast of, 500 feet below trestle of second loop going up canyon, west side of road at foot of cliff, 2 feet higher than road; aluminum tablet stamped "4541 Phnx"	4,540.611
Morenci, northeast corner of Detroit Copper Co.'s store, 0.5 foot higher than water table on main entrance; aluminum tablet stamped "4839 Phnx"	4,838.382
Morenci, north side of trail, on top of divide between Detroit Copper Co.'s store and Longfellow mine, 125 feet northeast of company hospital; iron post stamped "4992 Phnx"	4,991.773
Longfellow mine, 300 feet northwest of foot of incline, 25 feet north of railroad, south bank of Chase Creek, in large rock; aluminum tablet stamped "3989 Phnx"	3,988.962
Metcalf, southeast corner of Shannon Mine Co.'s office; iron post stamped "5543 Phnx"	5,542.903

From Clifton up San Francisco River 6 miles.

Harper ranch, 0.2 mile northeast of, east side of river, at foot of cliff 25 feet high, east of road; iron post stamped "3579 Phnx"	3,578.543
Evans Point, Moody's blacksmith shop, 500 feet east of southwest corner of, 25 feet north of river, north side of road, reddish granite ledge; aluminum tablet stamped "3542 Phnx"	3,541.565
Potter ranch, south side of entrance to, on west side of road; iron post stamped "3504 Phnx"	3,503.634
Clifton, 0.7 mile north of post office, east edge of road, east side of river, in foot of red ledge of rock; iron post stamped "3467 Phnx"	3,466.768

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From Big Lue ranch along highway southwest.

	Feet.
Big Lue ranch, 0.6 mile southwest of, at south gate to farm; surface of ground	6,083.64
Big Lue ranch, 2 miles southwest of, at forks of road, on bowlder; chisel mark	6,202.75
Big Lue ranch, 2.9 miles southwest of, north of and 4 feet above road, summit of mountain; aluminum tablet stamped "6382 Phnx"	6,381.751
Big Lue ranch, 4.1 miles southwest of, 10 feet east of trail, at drain crossing, on bowlder; chisel mark	5,686.97
Big Lue ranch, 5.5 miles south of, foot of mountains, at forks of road; iron post stamped "5109 Phnx"	5,108.914
Big Lue ranch, 7.5 miles south of, east side of road, at foot of hill, on bowlder; chisel mark	4,590.36
Big Lue ranch, 10.4 miles south of, 20 feet north of road, near lone tree on flat; iron post stamped "4466 Phnx"	4,466.097
Big Lue ranch, 11.6 miles south of, 30 feet east of road, in drain, on bowlder; chisel mark	4,162.56

From point 8 miles north of Clifton, Ariz., up San Francisco River to Arizona-New Mexico line.

Harper ranch, 4.3 miles north of, 100 feet east of river, 30 feet east of road, on bowlder; chisel mark	3,668.53
Sutherlin ranch, 550 feet east of house, in top of stump; bolt	3,809.61
Sutherlin ranch, 1 mile northeast of, southwest fence corner of deserted ranch, north side of road and river, on bowlder; chiseled square	3,832.16
Welch ranch, 0.3 mile south of, 40 feet east of road, 300 feet south of old house; iron post stamped "3973 Phnx"	3,972.364
Welch ranch, 1.5 miles north of, 10 feet east of road, in root of sycamore tree; wire nail	4,004.96
Welch ranch, 4.8 miles north of, 100 feet west of creek, 10 feet east of road, on bowlder; chiseled square	4,084.76
Welch ranch, 5.6 miles north of, 70 feet northeast of log cabin, 50 feet southeast of corral of deserted ranch; aluminum tablet stamped "4120 Phnx"	4,120.095
Welch ranch, 7.1 miles northeast of, 150 feet south of river, 30 feet north of road, on bowlder; chiseled square	4,151.84

From Welch ranch westalong road to Boyles, thence north to old H U (H U bar) ranch.

Welch ranch, 0.3 mile south of, 40 feet east of road, 300 feet south of old house; iron post stamped "3973 Phnx"	3,972.364
Sliger's ranch, 0.9 mile above, 50 feet west of road, 100 feet southwest of crossing; iron washer in base of 3½-foot cottonwood tree marked "3935"	3,935.04
Sliger's ranch, 20 feet southeast of road, 10 feet east of waste ditch, 300 feet north of barn; iron washer in root of 3-foot cottonwood tree marked "3915"	3,914.80
Sliger's ranch, 1 mile below, 15 feet north of road, 150 feet south of river channel; iron washer in base of oak tree marked "3889"	3,889.26
Boyles (Hagan's ranch), 150 feet south of house, 250 feet northwest of Frisco Channel, 6 feet from east gate post; iron post stamped "3863"	3,863.138
Boyles, 1.4 miles above, 200 feet west of Blue Channel, 250 feet west of road; iron washer in base of 3-foot cottonwood tree marked "3906"	3,906.07
Boyles, 2.5 miles above, at bend of canyon, 30 feet southeast of road and channel; iron washer in root of cottonwood stump marked "3951"	3,951.33

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	Feet.
Boyles, 3.2 miles above, 30 feet east of road, on wooded point at bend of canyon; iron post stamped "3993"	3,994.190
Boyles, 4.1 miles above, 150 feet southeast of pasture gate, 20 feet west of road; iron washer in root of 2-foot cottonwood tree marked "4020"	4,020.48
Boyles, 5.2 miles above, 30 feet west of road, 150 feet west of channel; iron washer in root of 5-foot cottonwood tree marked "4072"	4,073.16
Johnson Canyon, mouth of, 500 feet above mouth of Pigeon Creek, north side of road to Lue ranch, 9 feet from gatepost; iron post stamped "4118"	4,118.761
Johnson Canyon, 1 mile above, at bend of canyon, 75 feet east of road, 100 feet north of channel; iron washer in root of cedar stump marked "4150"	4,151.27
Fritz ranch, 2.5 miles below, wooded point at bend of canyon, 30 feet southeast of road, 150 feet west of channel; iron washer in root of cottonwood tree marked "4193"	4,194.34
Fritz ranch, 1.6 miles below, mouth of small canyon, 25 feet west of road, 200 feet west of channel; iron washer in root of 2-foot cottonwood tree marked "4242"	4,242.66
Fritz ranch, mouth of Alder Creek, 300 feet east of house, 150 feet southwest of corral, corner of orchard fence; iron post stamped "4321"	4,321.655
Fritz ranch, 0.7 mile above, 15 feet west of road, 150 feet east of channel; iron washer in root of 2½-foot cottonwood tree marked "4341"	4,341.64
Fritz ranch, 2 miles above, 100 feet southeast of deserted log cabin, 5 feet south of road; iron washer in top of stump marked "4415"	4,415.97
Base Line, ranger station, 75 feet northwest of house, 25 feet east of fence corner, 400 feet east of channel; iron post stamped "4481"	4,482.370
Forest Service bench mark 4481.22	4,482.63
Mouth of Little Blue River, at fork of canyon; iron washer in root of sycamore tree	4,508.34
Bell's ranch, 0.8 mile below, 20 feet west of road, 75 feet west of channel; iron washer in base of sycamore tree marked "4527"	4,528.10
Forest Service bench mark 4564.36	4,565.84
Bell's ranch, mouth of Squaw Creek, 200 feet west of house, 30 feet east of channel, 10 feet southwest of irrigation ditch; iron post stamped "4570"	4,570.530
Bell's ranch, 1 mile above, at bend of canyon, 50 feet west of road; iron washer in root of cottonwood tree marked "4612"	4,613.30
Bell's ranch, 2 miles above, on old McKean ranch, 5 feet northeast of house, 50 feet west of channel; iron washer in crotch of cottonwood tree marked "4655"	4,656.19

From H U ranch north along highway to Casper's ranch (double spur line).

Bell's ranch, 2.7 miles above, 0.3 mile below trail to Alma, 10 feet east of road, 150 feet east of channel, in clump of oak trees; iron post stamped "4689"	4,689.979
Bell's ranch, 4 miles above, 100 feet west of road, 300 feet west of channel; iron washer in base of 3-foot cottonwood tree marked "4739"	4,740.36
Bell's ranch, 4.8 miles above, northeast corner of old corral; iron washer in pine pole marked "4779"	4,780.07
Bell's ranch, 6 miles above, 125 feet northwest of road crossing, 15 feet west of road, at bend of canyon, wooded point; iron post stamped "4840"	4,841.106
Bell's ranch, 7 miles above, 300 feet above old log cabin, 60 feet northeast of road, 300 feet northeast of channel, 40 feet east of old corral; iron washer in root of 5-foot cottonwood tree marked "4895"	4,895.83

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	Feet.
Casper's ranch, 2.5 miles below, 30 feet east of road, 150 feet west of channel, at mouth of Stray Horse Canyon, near cottonwood tree; iron post stamped "4943"	4,943.501
Casper's ranch, 1.5 miles below, 25 feet northeast of road, 100 feet east of channel, 100 feet north of peach tree; iron washer in base of 3½-foot juniper tree marked "5001"	5,001.92
Casper's ranch, 0.5 mile below, 50 feet west of road, 250 feet west of channel; iron washer in base of sycamore tree marked "5060"	5,060.92
Casper's ranch, 75 feet south of house, 50 feet north of barn, corner of orchard fence; iron post stamped "5086"	5,086.948

From H U ranch west and southwest along road to ⊙ (Double Circle) ranch, thence east to N O ranch and south 2.8 miles.

H U ranch, 1.2 miles west of, 25 feet south of trail, on summit; iron nail and washer in low crotched juniper tree marked "5360"	5,361.39
J. Cosper ranch, 1.1 miles northeast of, 5 feet southeast of trail, on low divide; iron nail and washer in top of pinon stump marked "5240"	5,241.38
J. Cosper ranch, on Thomas Creek, mouth of drain from west, 400 feet south of house, 40 feet west of cottonwood tree, in malpais rock; aluminum tablet stamped "5136"	5,136.623
J. Cosper ranch, 1.2 miles southwest of, on divide between Thomas and Rousensock creeks, 10 feet south of trail; copper nail in base of blazed juniper tree marked "5590"	5,590.79
A D ranch, 2.5 miles below, on divide between Rousensock and Squaw creeks, 30 feet west of trail, 60 feet west of pasture fence; copper nail in base of juniper stump marked "5710"	5,710.79
A D ranch, 1.3 miles below, 20 feet south of trail, 30 feet south of channel; copper nail in top of pine stump marked "5724"	5,725.22
A D ranch, 250 feet east of house, at bend of creek, 10 feet south of trail, on malpais point, in malpais; bronze triangulation tablet stamped "5924"	5,925.418
A D ranch, 1.1 miles above, 700 feet above point where trail leaves Squaw Creek; copper nail in base of oak tree in trail marked "6109"	6,109.85
A D ranch, 2.5 miles southwest of, on saddle between Squaw and Pipestem creeks, 10 feet east of trail; copper nail in base of blazed pine tree marked "6811"	6,812.80
A D ranch, 3.2 miles southwest of, on bluff west side of Pipestem Creek (Blue-Eagle divide), 25 feet east of trail, 5 feet south of pine tree, in malpais at point; aluminum tablet stamped "6708"	6,709
Pine Flat ranger station, 2.1 miles northeast of, south slope of summit, 100 feet northwest of trail, U. S. Forest Reserve boundary and base line post No. 12 stamped "6735"	6,736.30
Pine Flat ranger station, 1.1 miles northeast of, point where trail enters Sheep Wash, 10 feet west of trail, 30 feet west of channel; copper nail in base of oak tree marked "6184"	6,185.45
T. 1 N., R. 29 E., secs. 32 and 33, Dudley Brothers ranch (6 K 6), 0.5 mile north of, on low divide between drains, 250 feet west of road; U. S. Forest Reserve boundary and base line post No. 10 stamped "6230"	6,231.219
Dudley Brothers ranch, 0.6 mile west of, 5 feet northwest of road, 100 feet northwest of drain; copper nail in base of oak tree marked "6108"	6,109.32
Dudley Brothers ranch, 1.5 miles west of, on saddle, 50 feet north of road; copper nail in base of oak tree marked "6391"	6,392.69
Dudley Brothers ranch, 2.5 miles southwest of, south slope of summit, 300 feet north of saddle, 300 feet northwest of road, 10 feet southwest of pine, in malpais ledge; aluminum tablet stamped "6336"	6,337.518

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Dudley Brothers ranch, 3.7 miles southwest of, point of ridge south from round summit, 15 feet east of road; copper nail in base of juniper tree marked "6196" ..... Feet. 6,197.19

⊙ ranch, 6.3 miles east of, on mesa ridge, 5 feet south of road, beside pile of malpais; chiseled cross on top of malpais, marked "5885" 5,886.19

⊙ ranch, 5.3 miles east of, on mesa ridge, between Bee and Oak canyons, 10 feet south of road, beside pile of malpais, in malpais; aluminum tablet stamped "5738" 5,739.219

⊙ ranch, 4.2 miles east of, on mesa ridge, 25 feet north of road, in saddle; copper nail in crotch of juniper tree marked "5429" 5,430.49

⊙ ranch, 2.5 miles southeast of, on mesa ridge, northeast slope of small summit, 30 feet north of road; copper nail in base of scrub cedar marked "5250" 5,251.40

⊙ ranch, 1.5 miles southeast of, on mesa ridge, point where road leaves ridge and crosses Bee Canyon, 30 feet southwest of road, in malpais; aluminum tablet stamped "4943" 4,944.330

⊙ ranch, 2.5 miles southeast of, north slope of ridge, 25 feet west of trail; copper nail in base of oak tree marked "4880" 4,881.59

N O ranch, 4 miles below, 30 feet north of trail up Sheep Wash, 150 feet east of forks of ⊙-Metcalf and ⊙-N O trails, in ledge of conglomerate stone; aluminum tablet stamped "4948" 4,949.231

N O ranch, 2.9 miles below, 1,000 feet northeast of rocky summit, 400 feet north of channel, 5 feet north of trail; copper nail in base of blazed mountain-willow tree marked "4960" 4,960.78

N O ranch, 1.5 miles below, 100 feet south of channel, in trail; copper nail in side of blazed black-oak tree marked "5085" 5,086.09

N O ranch, 10 feet northeast of house, 100 feet west of channel, in mal pais; aluminum tablet stamped "5291" 5,292.740

N O ranch, 1 mile south of, 20 feet northeast of trail, on ridge, 30 feet north of blazed pine tree; copper nail in base of pine tree marked "5672" 5,673.36

N O ranch, 1.8 miles south of, 20 feet east of trail, on ridge; copper nail in root of juniper tree marked "6051" 6,052.24

N O ranch, 2.8 miles south of, 10 feet east of trail, on ridge; copper nail in root of partly dead juniper tree marked "6388" 6,389.05

CLIFTON 15′ QUADRANGLE (MORENCI 30′ QUADRANGLE).

[Latitude 33°–33° 15′; longitude 109° 15′–109° 30′.]

From point 2.8 miles south of N O ranch south along road to Longfellow mine.

N O ranch, 3.4 miles south of, in red malpais saddle, 50 feet south of blazed juniper tree, 30 feet north of blazed cedar, 5 feet east of trail, in malpais; aluminum tablet stamped "6699" 6,700.164

N O ranch, 4.1 miles south of, point where trail leaves ridge and drops into Smith Canyon, 10 feet north of trail, in base of juniper tree in saddle; copper nail marked "6808" 6,810.18

N O ranch, 5.4 miles south of, point of ridge between the two head branches of Pigeon Creek, 15 feet east of trail, in malpais; aluminum tablet stamped "7076" 7,077.630

N O ranch, 6.3 miles south of, on ridge between Pigeon Creek and H-L Canyon, 5 feet northeast of road; copper nail in base of juniper stump marked "7420" 7,421.59

Metcalf, 10.1 miles north of, saddle between head of H-L Canyon and head of Whitewater, 5 feet east of trail; copper nail in base of juniper tree marked "7454" 7,455.70

Metcalf, 8.8 miles north of, 600 feet east of old Mexican hut, 20 feet northeast of trail; copper nail in trunk of juniper tree marked "7281" 7,282.55

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	Feet.
Metcalf, 7.8 miles north of, 400 feet north of log cabin (old Granville) on U. S. Forest Service administrative site, 4 feet above trail, in rock ledge set at angle of 45°; center of aluminum tablet stamped "6948"	6,949.107
Metcalf, 6.7 miles north of, 500 feet southeast of Mexican hut, 10 feet east of trail, 40 feet west of Chase Creek channel; copper nail in base of oak tree marked "6487"	6,488.97
Metcalf, 4.7 miles north of, 50 feet northeast of Metcalf ranger station, 20 feet west of trail and channel, in granite; aluminum tablet stamped "5572"	5,573.616
Metcalf, 3.6 miles north of, 300 feet east of stone house at Paddock's ranch, 30 feet southeast of trail, 15 feet southeast of channel; copper nail in root of sycamore tree marked "5242"	5,243.68
Metcalf, 2.6 miles north of, at mouth of canyon from west, 10 feet west of and 5 feet above trail; chiseled square on top of large granite bowlder marked "5080"	5,081.48
Metcalf, 1.7 miles north of, 40 feet south of house, 10 feet west of road at Garfield, in granite point; aluminum tablet stamped "4813"	4,814.112
Corner of cement floor (marked 4444.76 on door, unknown source)	4,444.61
Metcalf, 150 feet south of Arizona Copper Co.'s ore bins, 400 feet north of Coronado ore bins, 6 feet east of and 1½ feet above track, in rock ledge at 60° angle; center of tablet stamped "4430"	4,431.449
Metcalf, 1.2 miles south of, 200 feet north of tunnel, on upper track, 30 feet south of ironclad warehouse, 10 feet east of track; copper nail in tie beside switch marked "4226"	4,226.75
Longfellow mine, 300 feet northwest of foot of incline, 25 feet north of railroad, south bank of Chase Creek, in large rock; aluminum tablet stamped "3989 Phnx"	3,988.962

Christmas, Desert Well, Florence, Fort Thomas, Gila Butte, Gilson, Globe, Heaton, Maricopa, Mesa, Phoenix, Ray, Sacaton, San Carlos, and Solomonsville quadrangles.

GILA, GRAHAM, MARICOPA, AND PINAL COUNTIES.

The elevations in the following list are based on an aluminum tablet stamped "1090" set in north front of the Maricopa County courthouse at Phoenix, the elevation of which is now accepted as 1,090.410 feet above mean sea level.

The leveling was done in 1899 and 1900 by Thomas Winsor, in 1900 and 1901 by J. T. Stewart, and in 1902, 1903, and 1904 by the Reclamation Service. Additional elevations were established in Christmas, Ray, San Carlos, and Solomonsville quadrangles in 1914–15 by S. H. Birdseye.

The six following bench marks were established by the United States Reclamation Service in 1902, 1903, and 1904:

MARICOPA QUADRANGLE (PART OF HEATON 30′ QUADRANGLE).

[Latitude 33°–33° 15′; longitude 112°–112° 15′.]

From milepost 899 along Arizona Eastern R. R. to Sacaton.

	Feet.
Milepost 899, iron post stamped "1200 Phnx" (redetermined by precise leveling)	1,200.395
Maricopa, about 0.75 mile southeast of, northwest end of triangulation base line, north side of track, opposite milepost 897, bronze tablet (redetermined by precise leveling)	1,179.927

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	Feet.
Maricopa, in front of station; top of rail	1,175.4
Maricopa, 75 feet west of station; iron post stamped "1175 Phnx" (redetermined by precise leveling)	1,175.291
Maricopa, 4.25 miles north of, west side of track; iron post stamped "1145 Phnx"	1,145.150
Sacaton, station on the Arizona Eastern R. R., 60 feet south of switch head block; iron post stamped "1127 Phnx"	1,127.411

HEATON QUADRANGLE, EMBRACING PHOENIX QUADRANGLE.

[Latitude 33°–33° 30′; longitude 112°–112° 30′.]

At Phoenix.

Phoenix, Maricopa County courthouse, north front of, in projection at northwest corner, 15 feet west of main entrance, 3 feet above ground; aluminum tablet stamped "1090 Phnx"	1,090.410
Phoenix, opposite Santa Fe, Prescott & Phoenix Ry. station; top of rail	1,082.0
Phoenix, on east side of Seventh Street, 100 feet southeast of Arizona Eastern R. R. station, between two cottonwood trees; iron post stamped "1083 Phnx" (damaged)	1,083.420
Phoenix, opposite Arizona Eastern R. R. station; top of rail	1,082.5

At point 2 miles north of Phoenix.

Phoenix, 2 miles north of, northwest side of crossroads; iron post stamped "1096 Phnx"	1,096.488

From Phoenix northeast along Camp Creek Road to Ashers ranch, thence down Rio Verde to Salt River.

Phoenix, 3.2 miles north of, 20 feet west of road, on ditch bank at forks of road 400 feet south of brick church; iron post stamped "1108 Phnx"	1,108.556

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

From northeast corner of sec. 31, T. 2 N., R. 4 E., northwest to permanent bench mark at southwest corner of sec. 18, T. 2 N., R. 3 E.

	Feet.
T. 2 N., R. 3 E., northeast corner of sec. 25; iron post stamped "1211 Phnx"	1,211.781
T. 2 N., R. 3 E., southwest corner of sec. 16; iron post stamped "1136 Phnx"	1,136.428

From southwest corner of sec. 19, T. 2 N., R. 2 E., south 2 miles, thence east 6 miles to "Six Points."

T. 2 N., R. 2 E., southwest corner of sec. 19, 100 feet north of crossroads, east side of road, in root of cottonwood tree; nail	1,092.92
T. 2 N., R. 2 E., southwest corner of sec. 30, southwest corner of crossroads, in root of large cottonwood tree; nail	1,078.27
T. 2 N., R. 2 E., southwest corner of sec. 31, northeast corner of crossroads, in root of large cottonwood tree; nail	1,059.83
T. 2 N., R. 1 E., southeast corner of sec. 36, 35 feet west of fence corner, near wire fence, north side of road; iron post stamped "1058 Phnx"	1,058.416
T. 2 N., R. 2 E., southeast corner of sec. 33, southeast corner of crossroads, in root of cottonwood tree; nail	1,076.03
T. 2 N., R. 2 E., southeast corner of sec. 34, north side of road, in front of schoolhouse, in root of cottonwood tree; nail	1,077.82
"Six Points," sec. 36, T. 2 N., R. 2 E., southeast corner of crossroads; iron post stamped "1081 Phnx"	1,081.958

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From southwest corner of sec. 17, T. 2 N., R. 1 E., south to point 1 mile north of initial monument.

	Feet.
T. 2 N., R. 1 E., southwest corner of sec. 17, in root of cottonwood tree; nail.	1,035.32
T. 2 N., R. 1 E., southwest corner of sec. 20, in root of large cottonwood tree; nail	1,023.16
T. 1 N., R. 1 E., in northwest corner of sec. 6, east side of road, 7 feet from fence (south) corner; iron post stamped "1000 Phnx"	1,000.378
T. 1 N., R. 1 E., southwest corner of sec. 30, northeast of junction of roads, in large mesquite tree; nail	944.05

From northeast corner of T. 1 N., R. 1 E., south 4 miles, thence west to sec. 30.

T. 1 N., R. 1 E., at southeast corner of sec. 12, at northeast corner of cross-roads, in root of cottonwood tree; nail	1,030.12
T. 1 N., R. 1 E., 200 feet south of southeast corner of sec. 13, in stump of mesquite tree; nail	1,016.05
T. 1 N., R. 2 E., northwest corner of sec. 30, 35 feet south of ditch running west, 2 feet from small ditch running south, east side of road; iron post stamped "1006 Phnx" (could not be found in 1912)	1,006.251
T. 1 N., R. 1 E., on southwest corner stone of sec. 24	995.65

From sec. 30, T. 1 N., R. 1 E., to south bank of Gila River and return.

T. 1 N., R. 1 W., southeast corner of SE. ¼ sec. 36, 100 feet south of small grove of young cottonwood trees, on south bank of Gila River, 10 feet north of small ditch running west, initial point of survey of "Gila and Salt River base and meridian," northwest corner of small butte; iron post stamped "944 Phnx"	944.336

From southeast corner of sec. 24, T. 1 N., R. 1 E., southeast around western point of mountain range south of Phoenix, thence east to point on Arizona Eastern R. R. 1 mile south of Kyrene.

T. 1 N., R. 1 E., 100 feet west of southeast corner of sec. 24, in cottonwood tree; nail	1,005.773
T. 1 S., R. 1 E., 20 feet west of northeast cornerstone of sec. 1, south side of road along base line; iron post stamped "995 Phnx"	995.268
T. 1 S., R. 2 E., SE. ¼ sec. 20, edge of Indian reservation, 800 feet west of trading post, beside rock marked "G.R.I.R.B.M.," with monument of loose rock close by; iron post stamped "1052 Phnx"	1,052.178
T. 1 S., R. 2 E., SE. ¼ sec. 32, on town line, at northeast corner of St. John Chapel (large adobe building); iron post stamped "1031 Phnx" (not found in 1912)	1,031.604
T. 2 S., R. 3 E., SW. ¼ sec. 5, near well 15 feet south of group of buildings at mine; iron post stamped "1127 Phnx"	1,127.268
T. 1 S., R. 3 E., in southeast corner of sec. 36, triangulation point; iron post stamped "1168 Phnx"	1,168.924

MESA QUADRANGLE.

[Latitude 33° 15′–33° 30′; longitude 111° 45′–112°.]

From Phoenix via Arizona Eastern R. R. to Tempe.

T. 1 N., R. 3 E., near east quarter corner of sec. 12, 15 feet south of Arizona Eastern R. R. track; iron post stamped "1132 Phnx"	1,132.383
Bridge over Salt River; top of rail	1,165.5
Tempe, opposite station; top of rail	1,159.5
Tempe, north end of station, 50 feet east of main track; iron post stamped "1158 Phnx"	1,158.577

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From Tempe along Arizona Eastern R. R. to Mesa.

	Feet.
Tempe, 2.5 miles southeast of, on south side of road, opposite road running north; iron post stamped "1177 Phnx"	1,177.563
Mesa station, 1.5 miles northwest of, at northeast corner of crossroads, 30 feet north of track; iron post stamped "1235 Phnx"	1,235.609
Mesa, 250 feet southwest of station, near corner of wire fence on east side of public road; iron post stamped "1244 Phnx"	1,244.574

From Mesa along Florence road to Highland Canal.

Mesa, 3 miles southeast of, near wire fence corner at southeast corner of crossroads; iron post stamped "1243 Phnx"	1,243.646

From point 4 miles south of Kyrene north to Tempe.

Kyrene, 1 mile south of, 25 feet east of track on east side of public road; iron post stamped "1157 Phnx"	1,157.389
Kyrene, in front of signboard; top of rail	1,174.1
Kyrene, 1.5 miles north of, on top of bank 20 feet east of track, 180 feet south of culvert, west side of road; iron post stamped "1198 Phnx"	1,198.287
Tempe, 3.8 miles south of, 35 feet east of track, near fence, corner of field having small reservoir; iron post stamped "1188 Phnx"	1,188.186
Petersen, in front of signboard; top of rail	1,180.3

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

From Mesa, Arizona Eastern R. R. station, northeast to T. 2 N., R. 6 E.

Mesa, opposite station; iron post stamped "1244 Phnx"	1,244.574
T. 2 N., R. 6 E., SE. ¼ sec. 29, in masonry abutment of waterway of Consolidated Canal; bronze tablet stamped "1273 Phnx"	1,273.836

From bridge over Arizona Canal at power house 3.7 miles southwest of Arizona Dam southwest along power line to northeast corner of sec. 31, T. 2 N., R. 4 E.

	Feet.
T. 2 N., R. 6 E., NE. ¼ sec. 20, at power-line pole; iron post stamped "1281 Phnx"	1,280.922
T. 2 N., R. 5 E., 0.25 mile north of southwest corner of sec. 23, at power-line pole; iron post stamped "1286 Phnx"	1,285.974
T. 2 N., R. 5 E., 0.12 mile west of north quarter corner of sec. 28; iron post stamped "1260 Phnx"	1,260.685
T. 2 N., R. 4 E., southeast corner of sec. 22; iron post stamped "1261 Phnx"	1,261.090
T. 2 N., R. 4 E., near southeast corner of sec. 31, about 100 feet northwest of highway bridge over cross-cut canal; iron post	1,192.703

From point 1 mile south of Kyrene east 13 miles, thence south and east to southeast corner of T. 1 S., R. 5 E., thence northeast to permanent bench mark on road from Mesa to Desert Well.

T. 1 S., R. 4 E., southeast corner of sec. 33, in corner post; nail	1,162.89
T. 1 S., R. 4 E., southwest corner of sec. 34, 20 feet north of fence corner, east side of public road; iron post stamped "1166 Phnx"	1,166.739
T. 2. S., R. 5 E., 120 feet south of northwest corner of sec. 6, on line of wire fence; iron post stamped "1184 Phnx"	1,184.424
T. 1 S., R. 5 E., southeast corner of sec. 33, ditch along south side of fence at fence corner, on west side of public road; iron post stamped "1217 Phnx"	1,217.464
T. 1 S., R. 5 E., southeast corner of sec. 36; top of stone	1,239.41
T. 1 S., R. 5 E., sec. 36, on south side of abandoned irrigation ditch, wagon roads running north-south on both sides of post; iron post stamped "1252 Phnx"	1,252.086

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DESERT WELL QUADRANGLE.

[Latitude 33° 15′–33° 30′; longitude 111° 30′–111° 45′.]

From Highland Canal southeast along Florence Road to Desert Well.

	Feet.
Mesa, 6.25 miles southeast of, 60 feet south of road, on north side of giant cactus about 30 feet high; iron post stamped "1295 Phnx"	1,295.679
Desert Well, 5.25 miles northwest of, 20 feet northeast of road at point where road forks into two wagon tracks; iron post stamped "1351 Phnx"	1,351.417
Desert Well, 2.25 miles northwest of, northeast side of road at bend, 25 feet southeast of small drain; iron post stamped "1407 Phnx"	1,407.592
Desert Well, at northeast corner of fence inclosing Thomas Buchanan's residence; iron post stamped "1446 Phnx"	1,446.535

From Desert Well southeast 6 miles along public roads toward Florence.

Desert Well, 3 miles southeast of, on southwest side of road; iron post stamped "1490 Phnx"	1,490.470
Desert Well, 6 miles southeast of, on northeast side of road; iron post stamped "1542 Phnx"	1,542.547

From Desert Well along Mesa and Silver King road 6 miles.

Desert Well, 3 miles east of, 30 feet north of road; iron post stamped "1525 Phnx"	1,525.485
Desert Well, 6 miles east of, on north side of road, 150 feet west of small wash; iron post stamped "1609 Phnx"	1,609.533

From point northeast of Desert Well north to Goldfield.

Goldfield, 4 miles south of, on east side of road at bend; iron post stamped "1765 Phnx"	1,765.575
Goldfield, 1 mile southwest of, in forks, at junction with Mesa-Goldfield road; iron post stamped "1934 Phnx"	1,934.515

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

At head gate of Consolidated Canal.

	Feet.
Head gate of Consolidated Canal, coping of northwest abutment	1,297.60

From point 0.3 mile northwest of Higley switch northeast to permanent bench mark on road between Mesa and Desert Well.

Higley switch, 0.3 mile northwest of; T. 1 S., R. 6 E., center of sec. 28, beside telegraph pole, on southwest side of Arizona Eastern R. R.; iron post stamped "1290 Phnx"	1,290.607

FLORENCE QUADRANGLE.

[Latitude 33°–33° 30′; longitude 111°–111° 30′.]

From point 6 miles southeast of Desert Well southeast to Florence.

Desert Well, 9 miles southeast of, on northeast side of road, in open place on desert; iron post stamped "1601 Phnx"	1,601.528
Desert Well, 12 miles southeast of, on northeast side of road, about 0.5 mile southeast of Queen Creek; iron post stamped "1631 Phnx"	1,631.495
Florence, 11.8 miles northwest of, on northeast side of road, beside mesquite stump near bend; iron post stamped "1631 Phnx"	1,631.657
Florence, 8.5 miles northwest of, 35 feet northwest of crossroad; iron post stamped "1618 Phnx"	1,618.558

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	Feet.
Florence, 6 miles north of, on west side of road; iron post stamped "1595 Phnx"	1,595.518
Florence, 4 miles north of, in forks of road at junction with road running northeast to Raymert, 7 feet north of guideboard "Goldfield, 26 miles; Florence, 4 miles"; iron post stamped "1619 Phnx"	1,619.457
Florence, 1.25 miles north of, in forks of road at junction with road running northwest; iron post stamped "1479 Phnx"	1,479.452
Gila River, bed of, center of stream at road crossing	1,460
Florence, west front of Pinal County courthouse in southwest corner of west wing, about 3 feet above ground; aluminum tablet stamped "1493 Phnx"	1,493.335

From Florence west 6.8 miles.

Florence, 3.8 miles southwest of, 50 feet west of forks of road, about 1,000 feet east of Adamsville ruins; iron post stamped "1441 Phnx"	1,441.348
Florence, 6.8 miles southwest of, on north side of road, 100 feet southeast of adobe ruins; iron post stamped "1421 Phnx"	1,421.353

From Florence along Canal Road to The Buttes.

Florence, 2.5 miles east of, in forks of Butte-Florence and Florence-Kelvin roads, 50 feet west of canal; iron post stamped "1534 Phnx"	1,534.588
Florence, 3 miles northeast of, near corner of wire fence, at junction with dim road west on north line of sec. 32, T. 3 S., R. 10 E., 700 feet southwest of adobe ranch house; iron post stamped "1535 Phnx"	1,535.353
Florence, 6 miles northeast of, by a wire fence corner on northwest side of road, opposite forks; iron post stamped "1531 Phnx"	1,531.492
White ranch, 0.8 mile east of, on southwest bank of Gila River, 150 feet southeast of canal head gate, in top of granite ledge; aluminum tablet stamped "1574 Phnx"	1,574.039
The Buttes gaging station; zero point of gage rod	1,582.44
The Buttes, face of cliff, west side of Gila River, 4.25 feet above surface on axis of proposed dam; bronze tablet stamped "1592 Phnx"	1,592.808

From The Buttes along road via Donnelly's Well to Florence.

Donnelly's Well, 0.5 mile southwest of, on south side of road, at bend on top of hill; iron post stamped "2281 Phnx"	2,281.000
Donnelly's Well, 4 miles west of, on east side of road, near north bank of small wash; iron post stamped "2097 Phnx"	2,097.065
Donnelly's Well, 7 miles west of, on south side of road, at top of small hill; iron post stamped "1929 Phnx"	1,929.118
Florence, 6.5 miles east of, 75 feet southeast of junction with road running to Mammoth; iron post stamped "1769 Phnx"	1,769.178

From point 6 miles east of Desert Well east along Silver King Road to Hewitt ranch.

Desert Well, 9 miles east of, on north side of road at bend, 35 feet southeast of small wash; iron post stamped "1710 Phnx"	1,710.630
Whitlow ranch, 8.5 miles west of, on north side of road; iron post stamped "1832 Phnx"	1,832.263
Whitlow ranch, 5.25 miles west of, on south side of road, standing 2 feet above surface of ground, surrounded by mound of bowlders and earth; iron post stamped "1923 Phnx"	1,923.390
Whitlow ranch, 2.8 miles west of, in top of sandstone ledge on northwest side of road, at base of rocky hill, 40 feet northwest of Queen Creek; aluminum tablet stamped "1962 Phnx"	1,962.620

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	Feet.
Queen Creek gaging station; zero of gage rod	2,042.64
Whitlow ranch, 1,000 feet east of, on sloping ledge 13 feet south of south edge of Queen Creek bed, on axis of proposed dam; bronze tablet stamped "2056 Phnx"	2,056.799

From Hewitt ranch along Mesa-Silver King Road to Pinal.

Hewitt ranch, 1 mile east of, east side of road, 70 feet northwest of Queen Creek; iron post stamped "2171 Phnx"	2,171.182
Pinal, 3 miles west of, on side hill, south side of road, 100 feet east of wash; iron post stamped "2336 Phnx"	2,336.456
Pinal, 500 feet north of town, east side of road, top of sandstone outcrop; aluminum tablet stamped "2529 Phnx"	2,529.321

From Pinal north to Silver King, thence southwest to point west of Pinal.

Silver King, 2 miles southwest of, on east side of road, 170 feet north of wash, in top of pink sandstone bowlder; aluminum tablet stamped "3023 Phnx"	3,023.225
Silver King, south side of road, on west edge of town, at summit of steep hill; iron post stamped "3553 Phnx"	3,553.039
Silver King, 4.8 miles southwest of, northwest side of road, at junction with road running north to Whitford ranch; iron post stamped "2561 Phnx"	2,561.181

From point near Pinal southwest via Reymert to bench mark 4 miles north of Florence.

Reymert, 4 miles northeast of, north side of road, near end of brush fence, 75 feet north of house at Nicholas ranch; iron post stamped "2406 Phnx"	2,406.046
Reymert, 0.8 mile northeast of, northeast side of road, at south end of deep cut on summit of hill; iron post stamped "3160 Phnx"	3,160.707
Reymert, 2.25 miles southwest of, southeast side of road at bend; iron post stamped "2321 Phnx"	2,321.74
Reymert, 5.8 miles southwest of, northwest side of road at bend, 35 feet north of small wash; iron post stamped "2004 Phnx"	2,004.014
Reymert, 8.25 miles southwest of, east side of road, 25 feet southeast of small wash; iron post stamped "1845 Phnx"	1,845.094
Florence, 9 miles northeast of, northwest side of road opposite forks, at junction with road running northeast to Whitlow ranch; iron post stamped "1725 Phnx"	1,724.987
Florence, 6.5 miles northeast of, on east side of road at junction with old wood road; iron post stamped "1646 Phnx"	1,646.027

From Whitlow ranch southwest to point 9 miles northeast of Florence.

Whitlow ranch, 2 miles southwest of, 50 feet northeast of forks at junction with old Florence-Silver King road; iron post stamped "2062 Phnx"	2,062.358
Whitlow ranch, 5.25 miles southwest of, southeast side of road; iron post stamped "1926 Phnx"	1,926.341
Whitlow ranch, 8 miles southwest of, northwest side of road; iron post stamped "1841 Phnx"	1,841.077

From point 3.5 miles west of Whitlow ranch north to Bark ranch, thence southwest to main road.

Bark ranch, 2.8 miles south of, in forks of road at junction with road running north to Bark ranch; iron post stamped "2056 Phnx"	2,056.292
Bark ranch, north side of road, 80 feet west of house; iron post stamped "2236 Phnx"	2,236.074
Bark ranch, 6.25 miles southwest of, south side of road at bend, 30 feet east of small wash; iron post stamped "1863 Phnx"	1,863.340

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From point east of Desert Well north along Florence-Goldfield road.

	Feet.
Goldfield, 7 miles south of, west side of road, at junction with old wood road running southwest; iron post stamped "1694 Phnx"	1,694.596

From Donnelly's well along Florence-Riverside road to point near Riverside.

Donnelly's well, 3.25 miles east of, northeast side of road at bend, where road crosses a wash; iron post stamped "2625 Phnx"	2,625.394
Donnelly's well, 6.25 miles east of, at summit of hill, highest point between Florence and Riverside; iron post stamped "3081 Phnx"	3,081.615
Riverside, 5 miles southwest of, southeast side of road at bend on ridge; iron post stamped "2250 Phnx"	2,250.226

From Ray northwest along Salt River valley and Mineral Creek wagon road to Pinal.

Ray, 3.25 miles northwest of, east side of gulch, at bend, in top of projecting ledge; aluminum tablet stamped "2838 Phnx"	2,838.258
Ray, 6.25 miles northwest of, on south side of road, at summit of hill, in top of limestone ledge; aluminum tablet stamped "3761 Phnx"	3,760.901
Pinal, 5.8 miles southeast of, northeast side of canyon, opposite spring, 4.5 feet above bed of canyon, in sandstone ledge; aluminum tablet stamped "2953 Phnx"	2,952.816
Pinal, 2.8 miles southeast of, on northeast side of road, on top of rocky mound, 250 feet northwest of wash, in top of embedded bowlder; aluminum tablet stamped "2682 Phnx"	2,682.367

From point near Goldfield northeast along Roosevelt road to Mormon Flat.

Goldfield, 1 mile southwest of, in forks at junction of Mesa and Goldfield roads; iron post stamped "1934 Phnx"	1,934.515
Goldfield, 1.7 miles northeast of, 30 feet east of road, on ridge 1,300 feet east of Black Queen mine; iron post stamped "2105 Phnx"	2,105.606
Goldfield, 3.5 miles northeast of, at Government Well stage station, 300 feet northeast of well, 20 feet east of road; iron post stamped "2107 Phnx"	2,107.836

SACATON QUADRANGLE.

[Latitude 33°–33° 15′; longitude 111° 30′–111° 45′.]

From point 6.8 miles west of Florence west to Sacaton.

Blackwater Chapel, 3.25 miles southeast of, on north side of road, opposite a division fence near bend in road, 150 feet southeast of adobe ruins; iron post stamped "1397 Phnx"	1,397.425
Blackwater Chapel, 500 feet northwest of, 75 feet northwest of forks of roads; iron post stamped "1362 Phnx"	1,362.330
Blackwater Chapel, 3 miles northwest of, 50 feet southeast of junction with road running southeast; iron post stamped "1354 Phnx"	1,354.386
Sacaton, 3.8 miles east of, on northwest side of road near bend, 180 feet west of new ditch running north and south; iron post stamped "1305 Phnx"	1,305.507
Sacaton, on north side of gate, east side of Pima Indian agency grounds; iron post stamped "1274 Phnx"	1,274.617

GILA BUTTE QUADRANGLE.

[Latitude 33°–33° 15′; longitude 111° 45′–112°.]

From Sacaton northwest to Sacaton station.

Sacaton, 3 miles west of, south side of road, east bank of small drain; iron post stamped "1251 Phnx"	1,251.343
Sacaton, 6 miles west of, north side of road, west edge of open flat; iron post stamped "1223 Phnx"	1,223.333

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Casa Blanca, 3 miles northeast of, south side of road near Indian village, about 0.25 mile southeast of a Catholic chapel; iron post stamped "1198 Phnx" ..... Feet. 1,198.294

Casa Blanca, near corner on north side of wire fence, near fork of roads; 350 feet north of mission chapel; iron post stamped "1181 Phnx" 1,181.248

Casa Blanca, 3 miles west of, on north side of road, opposite forks at junction with road running north; iron post stamped "1163 Phnx" 1,163.226

Sacaton, south side of public road, 25 feet west of Arizona Eastern R. R. track, 60 feet south of switch head block; iron post stamped "1127 Phnx" 1,127.411

From Sacaton north along Arizona Eastern R. R. to point 4 miles south of Kyrene.

Sacaton, bridge over Gila River; top of rail 1,127

Sacaton, under bridge; bed of Gila River 1,119

Sacaton, 3 miles north of, 30 feet west of track, near telegraph pole, 300 feet north of vitrified-tile culvert; iron post stamped "1133 Phnx" 1,133.475

Kyrene, 4 miles south of, 25 feet west of track, beside telegraph pole; iron post stamped "1140 Phnx" 1,140.288

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

From southeast corner of T. 1 S., R. 5 E., south to permanent bench mark on road 6 miles west of Sacaton Indian Agency.

T. 2 S., R. 5 E., at east quarter corner of sec. 24, at stake; iron post stamped "1258 Phnx" ..... Feet. 1,258.731

T. 2 S., R. 5 E., southeast corner of sec. 36; iron post stamped "1255 Phnx". 1,255.534

T. 3 S., R. 6 E., southwest corner of sec. 19, 1,000 feet north of old Indian cemetery, 1,000 feet southeast of forks of road, by adobe house; iron post stamped "1246 Phnx" 1,246.070

From point 6 miles west of Sacaton Indian Agency south to Sweetwater, on Southern Pacific R. R., west to Maricopa, thence north to Sacaton, on Arizona Eastern R. R.

T. 4 S., R. 5 E., northwest corner of NE. ¼ sec. 30, 800 feet east of the most easterly butte of a group of buttes, on the highest point of which group is a triangulation point known as Sacaton Butte; iron post stamped "1289 Phnx" 1,289.380

T. 4 S., R. 4 E., sec. 35, 1 mile northwest of triangulation point Mica Butte in SE. ¼ sec. 35, 4 miles north of Sweetwater; iron post stamped "1303 Phnx" 1,303.776

Sweetwater, at well; iron post stamped "1297 Phnx" (redetermined by precise leveling) 1,297.522

Sweetwater, in front of station, main track; top of rail 1,298.8

Maricopa, 5.5 miles southeast of, southeast end of triangulation base line, north side of track opposite milepost 902, bronze tablet (redetermined by precise leveling) 1,226.206

Lirim switch; top of rail 1,232.9

RAY QUADRANGLE.

[Latitude 33°-33° 15′; longitude 110° 45′-111°.]

From point near Riverside northeast to Riverside.

Riverside, 2 miles southwest of, on southeast side of road, 200 feet northeast of junction with road running northeast to Piety Flat; iron post stamped "1940 Phnx" 1,940.330

Riverside, at southwest corner of small corral 120 feet northeast of post office, in top of embedded bowlder; aluminum tablet stamped "1778 "2995 Phnx" 1,777.992

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From Riverside northeast along Globe-Riverside road to Pioneer.

	Feet.
Riverside, bed of Gila River, at road crossing	1,759.2
Riverside, 3 miles northeast of, on southwest side of road, 400 feet west of point where road crosses wash, in top of granite bowlder; bronze tablet stamped "2511 Phnx"	2,510.756
Troy, east side of road at summit of hill, opposite road running southwest to mine, top of granite bowlder; aluminum tablet stamped "3644 Phnx"	3,643.933
Dripping Spring, 1 mile west of, southwest side of road, at gate on northwest side of a filled rail fence; iron post stamped "2986 Phnx"	2,986.128
Dripping Spring, 2 miles northeast of, 15 feet east of road, 30 feet south of small wash, in top of hard sandstone bowlder; bronze tablet stamped Phnx"	2,995.457
Pioneer, 3.25 miles south of, northeast side of road at bend, at point where road leaves ridge and ascends steep sidehill; iron post stamped "3846 Phnx"	3,846.028
Pioneer, east side of road, 40 feet southwest of stage station, in top of granite bowlder; aluminum tablet stamped "4505 Phnx"	4,505.136

From Dudleyville along Mammoth-Riverside road to Riverside (part of line).

Dudleyville, 6 miles northwest of, north side of road, at bend; iron post stamped "1866 Phnx"	1,865.778
Riverside, 6.5 miles southeast of, southwest side of road, at summit of hill; iron post stamped "1927 Phnx"	1,926.745
Riverside, 3.3 miles southeast of, on west side of road, at bend, on summit of hill; iron post stamped "1828 Phnx"	1,827.631

From Riverside along Mineral Creek road to Ray.

Kelvin, 2.25 miles north of, on west side of road, northwest bank of Mineral Creek, about 800 feet south of large eroded cliff; iron post stamped "1869 Phnx"	1,869.142
Ray, on east side of road nearly opposite mill, 100 feet north of company store, in top of low ledge; aluminum tablet stamped "2024 Phnx"	2,024.594

From point 2.5 miles up Dripping Springs Valley from mouth northwest along road up valley, tying to bench marks 1 mile west and 2 miles northeast of Dripping Springs.

T. 4 S., R. 16 E., corner of secs. 1, 6, 7, and 12, 3.5 miles northwest of mouth of Dripping Springs Valley, on east side of creek; top of section-corner post, elevation not stamped	2,254.31
Dripping Springs Valley, 5.3 miles northwest of mouth of, at old corral, on top of northwest corner of concrete wall of small reservoir; chiseled point, painted "U. S. B. M."	2,362.42
Dripping Springs, 2 miles northeast of, 15 feet east of road, 30 feet south of small wash, on top of sandstone bowlder; bronze tablet stamped "2995 Phnx" (in Value Bulletin 463, p. 49, plus 0.7 foot equals 1912 adjustment)	2,995.457
Dripping Springs, 1 mile west of, on southwest side of road, at gate on northwest side of rail fence; iron post stamped "2986 Phnx" (in Value Bulletin 463, p. 49, plus 0.7 foot equals 1912 adjustment)	2,986.128

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GLOBE QUADRANGLE.

[Latitude 33° 15′-33° 30′; longitude 110° 45′-111°.]

From Pioneer north to Globe.

	Feet.
Pioneer, 3.8 miles north of, southeast side of road, at summit of pass over Pinal Mountains; iron post stamped "6158 Phnx"	6,158.012
Globe, 7.5 miles south of, east side of road at bend, in top of large granite bowlder; bronze tablet stamped "4962 Phnx"	4,962.522
Globe, 4 miles southeast of, south side of gate, west side of road, at ranch "66"; iron post stamped "3825 Phnx"	3,825.168
Globe, 2.5 miles southeast of, on southwest side of road, at northeast corner of small corral opposite slaughterhouse; iron post stamped "3637 Phnx"	3,637.024
Globe, Gila County courthouse, in west face of, at southwest corner, 2 feet above ground; aluminum tablet stamped "3525 Phnx"	3,524.998

From Globe southeast along Arizona Eastern R. R. 2.5 miles.

Globe, opposite station; top of rail	3,509.2
Globe, 2.5 miles southeast of, on top of hill, 0.5 mile south of railroad, meridian mark; tablet stamped "3885 Phnx"	3,885.369
Globe, 2.5 miles southeast of, on south side of track, by warning post, at public-road crossing, 600 feet west of summit of hill; iron post stamped "3720 Phnx"	3,719.926

From Globe west along Globe-Payson road to Black Warrior.

Globe, 0.8 mile northwest of courthouse, 12 feet west of railroad track, at wagon-road crossing; iron post stamped "3461 Phnx"	3,461.093
Globe, 2.5 miles northwest of, on northeast side of road, opposite forks, at junction with Black Warrior road; iron post stamped "3348 Phnx"	3,348.146
Black Warrior, 1.25 miles southeast of, 150 feet northwest of saloon, on southwest side of road, at mouth of Webster Gulch, in top of brown sandstone rock 5 feet in diameter by 3 feet high; aluminum tablet stamped "3349 Phnx"	3,349.223

From Black Warrior west to Continental mine.

Black Warrior, 1.8 miles west of, 6 feet east of triple live-oak tree, at bend on south side of road, in top of sandstone bowlder; aluminum tablet stamped "3759 Phnx"	3,759.392
Black Warrior, 5.5 miles west of, 25 feet northeast of road, 100 feet north of summit of hill on divide between Webster and Pinto creeks, about 1 mile east of Continental copper mine; in top of sandstone bowlder; aluminum tablet stamped "4578 Phnx"	4,578.112

From Miami Flat southwest via Shultz ranch to point 6 miles south of Shultz ranch, thence east and northeast to Globe.

Shultz ranch, 2.8 miles northeast of, on southwest side of western pass toll road, on southwest bank of Bloody Tanks wash, opposite Burnett goat ranch; iron post stamped "3468 Phnx"	3,468.114
Shultz ranch, 0.25 mile southwest of, 45 feet southwest of gate; iron post stamped "3906 Phnx"	3,906.000
Shultz ranch, 3.8 miles southwest of, on east side of road, at base of short, steep hill, in top of schist ledge; aluminum tablet stamped "4523 Phnx"	4,522.926
Shultz ranch, 6.5 miles southwest of, on north side of road, on bank of Pinto Creek, in top of schist ledge; aluminum tablet stamped "4864 Phnx"	4,863.904

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	Feet.
Globe, 11 miles southwest of, on north side of trail, 150 feet east of summit of mountain, 20 feet northeast of 15-inch pine tree, in top of granite bowlder; aluminum tablet stamped "6487 Phnx"	6,486.522
Globe, 8.25 miles southwest of, on south side of small ravine, on east side of ridge toll road, 150 feet northeast of bridge across gulch, in top of gneiss rock; bronze tablet stamped "4857 Phnx"	4,857.183
Globe, 5.25 miles southwest of, 15 feet northeast of road, 50 feet north of sharp bend, in top of granite bowlder; aluminum tablet stamped "4438 Phnx"	4,437.842

From Globe northwest along Globe-Payson road to Harrold ranch.

Globe, 6 miles northwest of, at Harrold ranch, in front of circular corral on northeast side of road, 9 feet southeast of 36-inch cottonwood tree; iron post stamped "3170 Phnx"	3,170.140

From Globe north along road via Big Johnnie Gulch, thence east over divide just south of Big Johnnie mine to Copper Gulch, thence northeast 0.3 mile and return southwest along Copper Gulch to Globe.

Between Big Johnnie Gulch and drainage flowing to Buffalo smelter; 100 feet southwest of road; in limestone bowlder in hillside; bronze tablet stamped "3942"	3,942.317
Big Johnnie Gulch and Copper Gulch, top of divide between, in rock outcrop, 40 feet west of road through saddle in divide, bronze tablet stamped "4206"	4,205.799
Copper Gulch, head of, 15 feet south of wagon road, on divide; bronze tablet stamped "4136"	4,136.013
Hoosier and Gray mines, between, 180 feet north of water tanks, on top of ridge, 40 feet north of wagon road, in concrete bowlder; bronze tablet stamped "3979"	3,979.382

From Herrell ranch north on Livingston road to Hicks ranch.

Geralds ranch, 300 feet north of house, 200 feet west of Pinal Creek, 20 feet east of road, at fence corner, in stone flush with ground; aluminum tablet stamped "3069 Phnx"	3,069.178
Hicks ranch, 20 feet west of Globe road, in front of circular corral; iron post stamped "2990 Phnx"	2,990.732

GILSON QUADRANGLE.

[Latitude 33° 15′–33° 30′; longitude 110° 30′–110° 45′.]

From point near Globe east along Arizona Eastern R. R. to Rice.

Globe, 5.8 miles southeast of, 15 feet southwest of track, at southeast end of cut, 75 feet southeast of point of curvature; iron post stamped "3402 Phnx"	3,401.977
Cutter, east head block at; top of rail	3,257.2
Gilson's, 3.5 miles west of, by telegraph pole on north side of track; iron post stamped "3168 Phnx"	3,167.788
Gilson's, 0.25 mile west of water tank, by first telegraph pole west of public-road crossing, on north side of track; iron post stamped "3013 Phnx"	3,012.969
Gilson's, 2.8 miles southeast of, 10 feet south of track, east side of public-road crossing, 300 feet east of trestle 229; iron post stamped "2891 Phnx"	2,890.992
Rice, 2.8 miles northwest of, in front of second telegraph pole east of trestle 227; iron post stamped "2748 Phnx"	2,747.870
Rice, at northwest corner of crossroads, 180 feet east of switch head block; iron post stamped "2635 Phnx"	2,634.955

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SAN CARLOS QUADRANGLE.

[Latitude 33°-33° 30′; longitude 110°-110° 30′.]

From Rice south along Arizona Eastern R. R. to San Carlos.

	Feet.
Rice, 3 miles south of, 40 feet west of track, north side of wagon road; iron post stamped "2585 Phnx"	2,585.059
San Carlos, 4.5 miles north of, 25 feet east of track, east side of wagon road; iron post stamped "2540 Phnx"	2,539.969
San Carlos, 1.8 miles north of, 25 feet southwest of track, at public-road crossing; iron post stamped "2470 Phnx"	2,468.806
San Carlos, opposite station; top of rail	2,431.900
San Carlos, 150 feet northwest of station, 45 feet southwest of main track; iron post stamped "2431 Phnx"	2,430.916

From San Carlos via Hawk Canyon to Wooten ranch.

San Carlos, south of; bed of Gila River	2,386.200
San Carlos, 3 miles south of, on east side of road, north side of small wash; iron post stamped "2671 Phnx"	2,670.815
San Carlos, 6 miles south of, on southwest side of road, on top of hill, 45 feet west of U. S. Army telegraph pole; iron post stamped "3573 Phnx"	3,572.989
Wooten ranch, 6.25 miles north of, in limestone outcrop, 15 feet west of road, 25 feet northwest of small wash; bronze tablet stamped "3810 Phnx"	3,810.234
Wooten ranch, 3.25 miles north of, in top of rock 9 by 6 feet and 3 feet above surface, 35 feet southwest of wash, near base of tall cliff; aluminum tablet stamped "3454 Phnx"	3,453.741
Wooten ranch, 200 feet southwest of cabin, 40 feet northwest of trail, 30 feet west of 38-inch leaning sycamore tree, in top of large rock; bronze tablet stamped "3911 Phnx"	3,910.968

From San Carlos southeast along Arizona Eastern R. R. to Fort Thomas.

San Carlos, 4.5 miles southeast of, 12 feet southwest of track, 230 feet southeast of trestle 206, opposite Indian trail crossing; iron post stamped "2458 Phnx"	2,457.905
San Carlos, 6.8 miles southeast of, in front of first telegraph pole northwest of county-road crossing near Indian farm; iron post stamped "2504 Phnx"	2,503.723
San Carlos, 9.8 miles southeast of, 50 feet south of track, opposite county-road crossing, 1 mile west of Dewey siding; iron post stamped "2508 Phnx"	2,507.724
Geronimo, 11.25 miles northwest of, 25 feet northeast of track at east end of track, opposite adobe ruins of old subagency buildings; iron post stamped "2550 Phnx"	2,549.698
Geronimo, 9 miles northwest of, by first telegraph pole northwest of mile board 77, 100 feet south of trestle 189; iron post stamped "2586 Phnx"	2,585.742
Geronimo, 6.5 miles northwest of, 150 feet west of county-road crossing at Navajo Point, 10 feet north of road; iron post stamped "2586 Phnx"	2,585.537
Geronimo, 4.5 miles northwest of, by wire fence, 50 feet northwest of track, opposite county-road crossing, 0.8 mile southeast of Indian farm; iron post stamped "2606 Phnx"	2,605.559
Geronimo, at southeast corner of Alexander Bros.' general store, 300 feet north of track; iron post stamped "2633 Phnx"	2,632.631
Fort Thomas, 2.25 miles northwest of, 30 feet southwest of tracks, on east side of wagon road coming in to railroad from the south, 350 yards southeast of mile board 64; iron post stamped "2673 Phnx"	2,672.637

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From San Carlos west along road to head of box canyon of Gila River.

	Feet.
San Carlos, 3 miles southwest of, at mouth of gulch, where trail leaves wagon road for a short distance, on west side of gulch, on small flat, 10 feet south of trail; iron post stamped "2392"	2,391.786
San Carlos, 5 miles southwest of, on east side of small wooden corral, in base of second post from northeast corner of corral; spike	2,378.67

FORT THOMAS QUADRANGLE.

[Latitude 33°–33° 30′; longitude 109° 30′–110°.]

At and near Fort Thomas.

Fort Thomas, 500 yards southeast of station, 30 feet south of wagon-road crossing, 150 yards west of Alexander Bros.' general store; iron post stamped "2701 Phnx"	2,700.668
Fort Thomas, 3 miles southeast of, 9 feet east of corner of wire fence, 30 feet northeast of county-road crossing, 0.5 mile southeast of mile board 59; iron post stamped "2724 Phnx"	2,723.439

SOLOMONSVILLE QUADRANGLE.

[Latitude 32° 30′–33°; longitude 109° 30′–110°.]

From point near Fort Thomas southeast along Arizona Eastern R. R. to Solomonsville.

Matthew post office, 0.3 mile northwest of, near telegraph pole at mile board 55, 80 feet southeast of section house; iron post stamped "2755 Phnx"	2,754.483
Matthews post office, 1 mile northwest of, near angle of wire fence, 50 feet north of track at forks in road, 250 feet northwest of mile board 53; iron post stamped "2783 Phnx"	2,782.338
Matthews post office, 1.5 miles southeast of, near telegraph pole, 30 feet northeast of track, 100 feet southwest of Barney's store; iron post stamped "2813 Phnx"	2,812.620
Pima, 200 feet west of station, near warning signpost, 30 feet south of main track; iron post stamped "2843 Phnx"	2,842.564
Central, 50 feet southeast of road crossing, 300 feet west of church, opposite mile board 45; iron post stamped "2883 Phnx"	2,882.396
Thatcher, northwest end of station grounds, east side of wagon road, 30 feet south of track, 35 feet southwest of switch head block; iron post stamped "2931 Phnx"	2,930.145
Safford, 140 feet east of station, east side of street, 15 feet north of main track, 3 feet west of telephone pole; iron post stamped "2923 Phnx"	2,922.456
Safford, 2.5 miles southeast of, in front of telephone pole, on south side of county road between Safford and Solomonsville, 15 feet southwest of track; iron post stamped "2952 Phnx"	2,951.244
Solomonsville, 100 feet west of station, 20 feet southwest of main track, near telegraph pole; iron post stamped "2979 Phnx"	2,978.533
Solomonsville, in middle of front of school building, 3.5 feet above ground; aluminum tablet stamped "2976 Phnx" (tablet out, hole remains)	2,975.554

From Solomonsville east 7 miles.

Solomonsville, 3.25 miles east of, in forks of road at junction of Solomonsville-Coronado toll road with Solomonsville-Duncan county road, 40 feet east of toll-road signboard; iron post stamped "3098 Phnx"	3,097.455
Solomonsville, 5.5 miles northeast of, on northwest side of road at bend; iron post stamped "3208 Phnx"	3,207.545
Solomonsville, between 6.5 miles and 7.5 miles northeast of, junction with first road running north; ground	3,287.8
Solomonsville, between 6.5 and 7.5 miles northeast of, junction with second road running north; ground	3,312.8

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From Solomonsville southeast toward Ash Peak Spring.

	Feet.
Solomonsville, 3.5 miles east of, fork of Coronado toll road and Duncan road; iron post stamped "3098 Phnx"	3,097.455
Ash Peak Spring, 19.4 miles west of, 15 feet north of road, south bank of ravine; iron post stamped "3195 Phnx"	3,194.930

From Bailey's ranch northwest along highway and Arizona Eastern R. R. to Solomonsville.

Tanque, 0.5 mile south of, on northeast corner of railroad culvert, 1 foot west of sign "18 D", 370 feet south of milepost 19, in wooden stringer; copper bolt	3,272.05
Tanque, station on Arizona Eastern R. R., 200 feet southwest of telegraph station, 10 feet south of telephone pole; iron post stamped "3260 10"	3,259.565
Tanque, 0.5 mile north of, in base of milepost 20; spike, aluminum tag stamped "3250"	3,249.69
Tanque, 1.5 miles north of, in base of milepost 21; spike, aluminum tag stamped "3230"	3,229.65
Tanque, 2.5 miles north of, 18 feet south of milepost 22; iron post stamped "3204 11"	3,204.046
Tanque, 3.5 miles north of, in base of milepost 23; spike, aluminum tag stamped "3192"	3,191.49
Tanque, 4.5 miles north of, in base of milepost 24; spike, aluminum tag stamped "3173"	3,172.76
Tanque, 5.5 miles north of, 20 feet east of milepost 25, in top of south standard of extra rail holder; copper bolt, aluminum tag stamped "3158"	3,157.99
Tanque, 6.5 miles north of, at milepost 26, 10 feet south of milepost; iron post stamped "3151 12"	3,151.105
Haeckel siding, in base of milepost 27; spike, aluminum tag stamped "3144"	3,143.49
Haeckel siding, 1 mile north of, in base of milepost 28; spike, aluminum tag stamped "3120"	3,118.54
Haeckel siding, 2 miles north of,15 feet south of milepost 29; iron post stamped "3092 13"	3,090.655
Haeckel siding, 3 miles north of, in base of milepost 30; spike, aluminum tag stamped "3077"	3,075.91
Haeckel siding, 4 miles north of, in base of milepost 31; spike, aluminum tag stamped "3057"	3,055.32
Haeckel siding, 5 miles north of, at milepost 32, 12 feet south of milepost; iron post stamped "3028 14"	3,026.939
Haeckel siding, 6 miles north of, in base of milepost 33; spike, aluminum tag stamped "3010"	3,008.89
Haeckel siding, 7 miles north of, in base of milepost 34; spike, aluminum tag stamped "2992"	2,990.33
Solomonsville, 100 feet west of station, 20 feet south of track, near telegraph pole; iron post stamped "2979 Phnx". (In Bulletin 463, page 53, description as "east" of station is wrong. Elevation given here equals that in Bulletin 463 plus 0.8 foot)	2,978.533
Solomonsville, in middle of front of school building, 3.5 feet above ground; center of chisel hole left by removal of tablet. (Elevation equals that given in Bulletin 463, page 53, plus 0.8 foot)	2,975.554
Safford, 2.5 miles southeast of, in front of telephone pole on south side of county road, 15 feet south of track; iron post stamped "2952 Phnx". (Elevation equals that given in Bulletin 463, page 53, plus 0.689 foot)	2,951.244

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CHRISTMAS QUADRANGLE.

[Latitude 33°–33° 15′; longitude 110° 30′–110° 45′.]

From Dudleyville northeast along Arizona Eastern R. R. to mouth of Dripping Springs Valley, thence northwest along highway 2.5 miles.

	Feet.
Winkelman, 2.1 miles northeast of, on north side of track, on rock; chiseled point, painted "U. S. B. M."	1,977.64
Winkelman, 3.1 miles north of, on northwest side of railroad, in rock painted "U. S. B. M.;" bronze tablet stamped "1996"	1,998
Winkelman, 4.8 miles northeast of, at a red post at north end of wire stretched across Gila River, on north side of track, on rock; chiseled point, painted "U. S. B. M."	2,017.91
Christmas, 625 feet east of station, on railroad track over culvert; rail joint painted white	2,063.1
Christmas, 0.8 mile east of station, at summit of wagon road to Dripping Springs Valley, on north side of road, on rock; chiseled point, painted "U. S. B. M."	2,298.33
Dripping Springs Valley, near mouth of, where wagon road descends to bottom of valley, 100 feet from west bank of creek, on south side of road, in rock painted "U. S. B. M.;" bronze tablet stamped "2056"	2,056.202
Dripping Springs Valley, 2.5 miles northwest of mouth of, on east side of wagon road, on bank of small wash, on bowlder; chiseled point, painted "U. S. B. M."	2,199.61

From point 6.9 miles southwest of San Carlos along highway northwest 2.3 miles out of Box Canyon of Gila River, thence south-southwest to Deer Creek.

San Carlos, 6.9 miles southwest of, at head of Box Canyon, 200 feet south of old rock house, 250 feet north of Gila River, on south side of trail; iron post stamped "2358"	2,357.55
San Carlos, 7.7 miles southwest of, 0.8 mile north of old rock house, at small rocky point on trail to Tuttle's ranch, at foot of steep rise in trail, on east side of trail, on rock; chiseled point, painted "U. S. B. M."	2,496.06
San Carlos, 9.25 miles southwest of, at top of divide between Soda Spring gulch and the gulch west of it, on northwest side of trail, on rock; chiseled point, painted "U. S. B. M."	2,992.87
San Carlos, 10 miles southwest of, on low grassy ridge in middle of first gulch west of Soda Spring gulch, on northeast side of ridge, 50 feet from top, 35 feet northwest of trail, in rock painted "U. S. B. M.;" bronze tablet stamped "2891" (rock monument built)	2,891.579
San Carlos, 11 miles southwest of, on southwest side of above-mentioned gulch, at saddle where trail crosses divide, on southeast side of trail, on rock; chiseled point, painted "U. S. B. M." (rock monument built)	2,912.29
San Carlos, 12 miles southwest of, at point where trail drops into bed of small gulch which it follows to river, on east side of trail, at junction of two gulches, on bowlder; chiseled point, painted "U. S. B. M."	2,487.02
San Carlos, 13 miles southwest of, at mouth of small gulch, 350 feet northwest of Gila River, 30 feet west of where trail leaves small gulch and follows west bank of river, on west side of trail, on rock; chiseled point, painted "U. S. B. M."	2,309.82
San Carlos, 14 miles southwest of, 1,800 feet north of Tuttle's ranch, at mouth of Hawk Canyon, on south side of Gila River, where Indian reservation line crosses trail, on side of hill, 15 feet south of trail; iron post stamped "2290"	2,290.409

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	Feet.
Tuttle's ranch, 0.5 mile southwest of, on top of ridge, on east side of trail, on rock; chiseled point, painted "U. S. B. M."	2,703.25
Tuttle's ranch, 1.3 miles southwest of, on point of ridge, 350 feet northwest of main top of hill, 10 feet northwest of trail, at foot of cat claw bush, in rock painted "U. S. B. M.;" bronze tablet stamped "3020"	3,019.948
Tuttle's ranch, 2 miles southwest of, on west side of deep canyon, in saddle at top of ridge, 25 feet south of trail, on rock; chiseled point, painted "U. S. B. M."	3,300.51
Tuttle's ranch, 2.7 miles southwest of, on top of ridge, about 0.75 mile beyond where trail climbs to top of ridge, on north side of trail, on rock; painted circle, painted "U. S. B. M."	3,447.47
Tuttle's ranch, 3.4 miles southwest of, 20 miles east of top of divide on Jerusalem Mountain, at foot of steep climb in trail, on top of ridge, on rock; chiseled point, painted "U. S. B. M."	3,860.67
Tuttle's ranch, 3.8 miles southwest of, on shoulder of Jerusalem Mountain, just above falls on Jerusalem Canyon, 200 feet southwest of trail, in pile of large rocks painted "U. S. B. M.;" bronze tablet stamped "4200"	4,200.777
Tuttle's ranch, 5.3 miles southwest of, at summit of divide on Jerusalem Mountain, where trail crosses divide, on north side of trail, in rock painted "U. S. B. M.;" bronze tablet stamped "4745"	4,745.775
Jerusalem Mountain, 1.4 miles southwest of summit of, 4 miles northeast of Deer Creek, at foot of mountain, on west side, on east side of small gulch and west end of small rocky knoll, on northwest side of trail, on rock; chiseled point, painted "U. S. B. M."	3,245.47
Jerusalem Mountain, 2.4 miles southwest of summit of, 3 miles northeast of Deer Creek, on northwest side of old wagon road that leads to abandoned coal mine, on rock; chiseled point, painted "U. S. B. M."	2,901.04
Jerusalem Mountain, 3.8 miles southwest of summit of, 1.5 miles northeast of Deer Creek, on south side of old wagon road, on rock; chiseled point, painted "U. S. B. M." (with stone monument 1.5 feet high)	2,730.65
Ming's ranch (formerly Manning's ranch), 5 miles west of, 20 feet north of trail, at west edge of gravel mound, on top of limestone bowlder; aluminum tablet stamped "2652 Phnx." (Value given in Bulletin 463, page 17, plus 0.7 foot equals 1912 adjustment)	2,651.580

From Gila River east up Deer Creek and Little Rock Creek to point 7.5 miles west of Ming's ranch.

Winkelman, 5.75 miles northeast of, at north end of tunnel on railroad, on north side of track, 15 feet from mouth of tunnel, 2 feet above ground, in side of cut, in rock painted "U. S. B. M.;" bronze tablet stamped "2040"	2,040.892
Deer Creek, 1.5 miles east of mouth of, 0.8 mile west of Jack Lee's mine, on trail on south side of creek, on ledge of rock; chiseled point, painted "U. S. B. M."	2,112.24
Deer Creek, 2.4 miles east of mouth of, at Jack Lee's mine, on south side of trail, on south side of creek, on rock; painted circle, painted "U. S. B. M."	2,214.71
Jack Lee's mine, 1.4 miles east of, at old white tent, on north bank of creek, on rock; chiseled point, painted "U. S. B. M."	2,349.40
Little Rock Creek, at mouth of, on south bank of Deer Creek and west bank of Little Rock Creek, on rock; chiseled point, painted "U. S. B. M."	2,415.85
Ming's ranch (formerly Manning's ranch), 7.5 miles west of, on north side of trail, on southwest bank of Little Rock Creek, on top of kite-shaped bowlder; aluminum tablet stamped "2510 Phnx." (Value given in Bulletin 463, page 17, plus 0.7 foot equals 1912 adjustment)	2,509.317

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Maricopa quadrangle.

PINAL COUNTY (Including Gila River Indian Reservation).

The elevations in the following list were determined by primary leveling and accord with the 1912 adjustment.

The leveling was done in 1911 by the General Land Office and adjusted by the Geological Survey.

The closure error of this work was large—0.67 foot in 22 miles.

MARICOPA QUADRANGLE (part of Heaton 30′ quadrangle).

[Latitude 33°–33° 15′; longitude 112°–112° 15′.]

From Sacaton northwest along highways to center of north line of T. 3 S., R. 2 E., thence southeast and east to a point 4.5 miles north of Maricopa.

	Feet.
Sacaton, station on the Arizona Eastern R. R., 60 feet south of switch head-block; iron post stamped "1127 Phnx" (U. S. G. S. b. m. established by Reclamation Service)	1,127.411
Sacaton, 0.9 mile northwest of, 13 feet northwest of mesquite tree which is 55 feet south of road and which is blazed on northwest and north sides; lath	1,117.76
Sacaton, 3.4 miles northwest of, 10 feet north of road, on south edge of mesquite timber; 3-inch iron post marked "1098"	1,098.432
T. 3 S., R. 3 E., $\frac{1}{16}$ section corner No. 6, between secs. 7 and 8; top of post	1,090.76
Sacaton, 6.8 miles northwest of, about a quarter of a mile east of road, corner of Tps. 2 and 3 S., Rs. 2 and 3 E.; top of 3-inch iron post stamped (probably) "1084"	1,084.132
Tps. 2 and 3 S., R. 2 E., $\frac{1}{16}$ corner No. 2 between secs. 1 and 36; top of 1-inch iron post	1,073.6
Tps. 2 and 3 S., R. 2 E., quarter corner between secs. 2 and 35; top of 1-inch iron post	1,068.63
Tps. 2 and 3 S., R. 2 E., $\frac{1}{16}$ corner No. 2 between secs. 2 and 35; top of 1-inch iron post	1,064.22
Tps. 2 and 3 S., R. 2 E., corner of secs. 3, 4, 33, and 34, 600 feet west of wagon road, 400 feet east of Santa Cruz wash; top of 3-inch iron post	1,052.4
T. 3 S., R. 2 E., sec. 14, west side of road, 400 feet south of prominent bunch of trees, a quarter of a mile north of old Indian hut, corral, and well; top of 3-inch iron post	1,072.28
T. 3 S., Rs. 2 and 3 E., $\frac{1}{16}$ corner No. 6 between secs. 25 and 30; top of 1-inch iron post	1,098.01
Tps. 3 and 4 S., Rs. 2 and 3 E., at corner of; iron post	1,119.358
Tps. 3 and 4 S., R. 3 E., $\frac{1}{16}$ corner No. 2 between secs. 5 and 32; top of iron post	1,120.84
Tps. 3 and 4 S., R. 3 E., 350 feet west of corner of secs. 4, 5, 32, and 33, flush with ground; hub 2 inches square	1,121.63
Tps. 3 and 4 S., R. 3 E., $\frac{1}{16}$ corner No. 1 between secs. 4 and 33; top of 1-inch iron post	1,126.06
Maricopa, 4.25 miles north of, west side of track; iron post stamped "1145 Phnx" (established by U. S. R. S.)	1,145.150

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Bradshaw Mountains, Camp Verde, Congress, Jerome, New River, Santa Maria Mountains, and Wickenburg quadrangles.

MARICOPA AND YAVAPAI COUNTIES.

The elevations in the following list are based on mean sea level datum in agreement with the elevations of bench marks at Ashfork by the United States Coast and Geodetic Survey. Part of the elevations were originally based on an iron post in the grounds of and 20 feet north of the courthouse at Prescott. The elevation of that bench mark is now accepted as 5,354.014 feet above mean sea level.

The leveling in the Bradshaw Mountains quadrangle was done by J. P. Darling and J. T. Stewart in 1900 and 1901; the work in the New River, Jerome, Santa Maria Mountains, and Congress quadrangles was done in 1901, 1902, and 1903 by Stewart.

All bench marks originally depending on the Prescott datum are stamped with the letters "Prsct," in addition to the figures of elevation.

The remaining elevations in the New River and Wickenburg quadrangles, where bench marks are stamped "Phnx," were originally based on the aluminum tablet in the courthouse at Phoenix, stamped "1090," the accepted elevation of which is 1,090.410 feet above mean sea level. The leveling was done in 1903 by Stewart.

BRADSHAW MOUNTAINS QUADRANGLE.

[Latitude 34°-34° 30′; longitude 112°-112° 30′.]

From point 2.25 miles south of Prescott south via Bueno, Senator mine, Minnehaha, and Lehman's mine, to Briggs.

	Feet.
Whiteside's house, 0.4 mile south of, 0.6 mile north of Groom Creek bridge; iron post stamped "6149 Prsct"	6,157.534
Kelly's station, 0.25 mile south of, 0.8 mile north of forks of road to Reliance mine, top of small hill, 10 feet north of road; iron post stamped "6396 Prsct"	6,404.347
Covered bridge, 1.6 miles south of, at intersection of Mount Union and Crown King roads and on divide between Maple Gulch and Crook Canyon; iron post stamped "7187 Prsct"	7,195.655
Palace station, 75 feet north of, 1.4 miles south of burnt mill, 20 feet west of road; iron post stamped "5847 Prsct"	5,855.597
Coys, 125 feet west of station, at intersection of Crown King and Pine Flat roads, 10 feet south of road, in outcrop of rock; aluminum tablet stamped "5563 Prsct"	5,570.808
Bueno, or Johnson's station, 125 feet north of house, 3 feet east of road, in rock; aluminum tablet stamped "5258 Prsct"	5,266.487
Bueno, 2.25 miles south of, on divide between Battle Flat and Blind Indian creeks, 8 feet east of road; iron post stamped "5740 Prsct"	5,748.474
Roach's quartz mill, 0.3 mile north of, top of hill between Blind Indian Creek and a small creek, 15 feet east of road; iron post stamped "5390 Prsct"	5,398.303
Hooper post office, 1.5 miles south of, in forks of Crown King and Minnehaha roads; iron post stamped "5968 Prsct"	5,976.001

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	Feet.
Minnehaha, 3.5 miles north of, at Peterson ranch (deserted), east side of road; iron post stamped "5244 Prsct"	5,252.071
Minnehaha, 75 feet south of post office, east side of road, 1,400 feet south of Buttons mine; iron post stamped "5440 Prsct"	5,448.047
Minnehaha, 3.3 miles southwest of, 200 feet southwest of old Fenton ranch, 25 feet southeast of intersection of old Phoenix road with Oak Creek road; iron post stamped "4354 Prsct"	4,362.263
Briggs, 4.5 miles north of, 1.5 miles north of Lehman's mine, 40 feet east of road, on rocky point on ridge near divide; aluminum tablet stamped "4569 Prsct"	4,577.186
Copperopolis mine, 1.1 miles north of, 125 feet east of trail, in point of rocky ridge; aluminum tablet marked "3939 Prsct"	3,947.287
Briggs, 400 feet north of post office, 50 feet west of road, 15 feet higher than creek bed; aluminum tablet stamped "2759 Prsct"	2,767.243

From Briggs southeast to point 5.6 miles northwest of Hot Springs.

Briggs, 1.1 miles southeast of, north side of road at forks of road running to Whipsaw mine, foot of cliff on north side of Castle Creek; iron post stamped "2636 Prsct"	2,644.479
Hot Springs, 5.6 miles northwest of, west side of Castle Creek, west side of road; iron post stamped "2350 Prsct"	2,358.539

From Hudson to Mayer.

Hudson, 500 feet northeast of abandoned house, north bank of creek, south side of road; iron post stamped "1931 Prsct"	1,939.654
Goddard, 200 feet southeast of ranch, west side of road; iron post stamped "1991 Prsct"	1,999.401
Black Canyon Creek, 50 feet south of, on point in bend of creek, 50 feet east of road; iron post stamped "2020 Prsct"	2,028.442
Bumble Bee, 3 miles south of, 60 feet south of small dry creek, 10 feet east of road; iron post stamped "2515 Prsct"	2,523.418
Bumble Bee, 200 feet northeast of store, 20 feet west of road; iron post stamped "2509 Prsct"	2,517.522
Bumble Bee, 2.8 miles north of, 6 miles south of Cordes, in forks of road; iron post stamped "2686 Prsct"	2,694.258
Cordes, 3 miles south of, in forks of road at Hidden Treasure mine, 20 feet west of road; iron post stamped "3074 Prsct"	3,082.425
Cordes, 150 feet west of post office, 60 feet west of storehouse, 25 feet south of road; iron post stamped "3762 Prsct"	3,770.493
Cordes, 2.5 miles north of, 6.5 miles south of Mayer, on top of small raise, 10 feet east of road; iron post stamped "4024 Prsct"	4,032.341
Mayer, 3.25 miles south of, on top of hill, 30 feet east of road; iron post stamped "4353 Prsct"	4,361.162

From Mayer to Sevenmile house.

Mayer, 0.3 mile north of railroad station, 25 feet west of road, 50 feet west of Big Bug Creek; iron post stamped "4392 Prsct"	4,400.363
Mayer, 2.5 miles northwest of, 400 feet north of McMichael ranch, 180 feet west of railroad track, 20 feet northeast of road; iron post stamped "4605 Prsct"	4,613.192
Old Big Bug town, 1 mile north of Big Bug post office, in forks of Big Bug and McCabe roads; iron post stamped "5069 Prsct"	5,077.235
Providence, 0.8 mile northwest of post office, at forks in road to Postmaster mine; iron post stamped "5620 Prsct"	5,628.516

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	Feet.
Steeze ranch, 1.5 miles northwest of, on top of divide between Big Bug and Lynx creeks; iron post stamped "6995 Prsct"	7,003.672
Big Bug and Lynx Creek-Prescott roads, 1.25 miles northwest of intersection, on top of hill, 20 feet south of road; iron post stamped "6225 Prsct"	6,233.385

From Bueno to Mayer via Battle Flat.

Bueno, 5 miles east of, 2.25 miles west of Goat ranch, on bank of Tuscumbia Creek, 15 feet south of road; iron post stamped "5027 Prsct"	5,035.418
Goat ranch, 0.5 mile northeast of, top of hill between Peck Canyon and Bear Creek, 15 feet east of road; iron post stamped "4638 Prsct"	4,646.419
Wolf Creek, 1 mile northeast of, summit of hill between Wolf Creek and Dead Cow Gulch, slate outcrop 20 feet north of road; aluminum tablet stamped "4839 Prsct"	4,847.235
Mayer, 1.5 miles southwest of, at forks of Crown King road and old Virgin Mary road; iron post stamped "4625 Prsct"	4,633.348

From Crown King to Alexandra.

Crown King, 2.25 miles north of, 4.8 miles south of Hooper post office, top of divide, 15 feet west of road; iron post stamped "6769 Prsct"	6,776.940
Crown King, 75 feet north of saloon at intersection of Prescott-Crown King and Mayer-Crown King roads, 25 feet north of Prescott road; iron post stamped "5975 Prsct"	5,083.331
Crown King, 3 miles north of, 0.5 mile north of top of divide, 20 feet west of road; iron post stamped "7016 Prsct"	7,024.002
Alexandra, 3.8 miles north of top of divide, 8 feet north of road, in quartz rock; aluminum tablet stamped "5391 Prsct"	5,399.469

Mount Union (not checked).

Mount Union, highest point; bronze tablet marking primary triangulation station, stamped "7971 Prsct"	7,978.940

Five miles west of Minnehaha.

Minnehaha, 5 miles west of, 50 feet east of intersection of Wagoner, Minnehaha, and Briggs roads; iron post stamped "3955 Prsct"	3,963.154

At Chaparral siding.

Chaparral siding, 100 feet west of, 150 feet east of road; iron post stamped "4740 Prsct"	4,747.718

NEW RIVER QUADRANGLE.

[Latitude 33° 30′–34°; longitude 112°–112° 30′.]

From point 2 miles northwest of Hot Springs to Alkire ranch.

Hot Springs, 2 miles northwest of, 30 feet south of Hot Springs Junction road, south side of Castle Creek; iron post stamped "2090 Prsct"	2,098.684
Hot Springs, 20 feet east of hotel office; iron pipe stamped "1971 Prsct"	1,971.321
Dripping Springs, 700 feet northwest of, foot of intersection of north bank of Castle Creek and west bank of ravine coming from east, 40 feet north of road; iron post stamped "1806 Prsct"	1,814.352
Dripping Springs, 3.6 miles southeast of, foot of cliff 15 feet high, north side of Castle Creek, 50 feet north of road; iron post stamped "1608 Prsct"	1,616.136
Castle Creek, 275 feet northwest of mouth of, foot of north bank of Castle Creek, 50 feet east of rock ledge; iron post stamped "1489 Prsct"	1,497.291
Agua Fria River, bed of, at road crossing	1,441

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	Feet.
Frog Tank, 400 feet northwest of, on east side of river, 63 feet above river, west side of old road, in rock ledge; aluminum tablet stamped "1495 Prsct"	1,503.336
Lower New River, 6.8 miles southwest of, top of ridge between two small washes, 15 feet south of road; iron post stamped "1694 Prsct"	1,702.401
Lower New River, 3.1 miles southwest of, 75 feet east of foot of bench on west side of New River, west side of trail; iron post stamped "1832 Prsct"	1,840.502
Lower New River, southwest corner of yard, east side of road; iron post stamped "1984 Prsct"	1,992.346
Alkire ranch, west side of road, 10 feet north of yard gate; iron post stamped "2155 Prsct"	2,163.368

From Nada siding southeast along Santa Fe, Prescott & Phoenix Ry. to Phoenix.

Nada, 3 miles south of, 60 feet west of track; iron post stamped "1574 Phnx"	1,574.079
Beardsley, 5.4 miles northwest of, 75 feet west of track, 0.5 mile southeast of mileboard 163; iron post stamped "1451 Phnx"	1,451.597
Beardsley, 2.3 miles northwest of, 100 feet west of track; iron post stamped "1351 Phnx"	1,351.587
Beardsley, at section house yard gate, 75 feet east of track; iron post stamped "1282 Phnx"	1,282.684
Beardsley, 3.2 miles south of, 60 feet west of track, at mileboard 172; iron post stamped "1189 Phnx"	1,189.698
Agua Fria River bridge, 24 feet above river bed; top of rail	1,139.8
Agua Fria River bridge, 0.1 mile east of, 40 feet east of track; iron post stamped "1151 Phnx"	1,151.708
New River bridge, 15 feet above river bed; top of rail	1,140.8
Peoria, 1.4 miles northwest of, 150 feet southeast of track at road crossing; iron post stamped "1136 Phnx"	1,136.750
Peoria, in front of station; top of rail	1,144.7
Peoria, 1.4 miles south of, 100 feet west of track, at highway crossing; iron post stamped "1137 Phnx"	1,137.512
Glendale, north end of station park, east of track; iron post stamped "1152 Phnx"	1,152.923
Glendale, 2.2 miles east of, west of mileboard 186, 100 feet north of track, by fence; iron post stamped "1144 Phnx"	1,144.752
Alhambra, in front wall of station; aluminum tablet stamped "1119 Phnx"	1,119.809
Six Points, 100 feet southeast of, where 6 roads intersect; iron post stamped "1082 Phnx"	1,081.958

From point 2 miles north of Phoenix north along roads to New River.

Phoenix, 5.6 miles north of, 3 miles north of Six Points, 35 feet west of center of crossroads; iron post stamped "1135 Phnx"	1,135.384
Six Points, 6 miles north of, 75 feet east of cross roads; iron post stamped "1195 Phnx"	1,195.445
Arizona Canal, 2 miles north of, near west end of Phoenix Mountains, 25 feet west of road; iron post stamped "1287 Phnx"	1,287.242
Arizona Canal, 5 miles north of, 50 feet west of road; iron post stamped "1343 Phnx"	1,343.426
Arizona Canal, 8.1 miles north of, 0.5 mile southeast of Malpais Mountain, east side of road; iron post stamped "1403 Phnx"	1,403.391
Arizona Canal, 11.4 miles north of, 13 miles south of New River station, 30 feet west of road; iron post stamped "1480 Phnx"	1,480.013

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	Feet.
New River station, 9.4 miles south of, 50 feet west of road; iron post stamped "1625 Phnx"	1,625.151
New River station, 5.8 miles south of, 25 feet east of road; iron post stamped "1705 Phnx"	1,705.004
New River station, 2.6 miles south of, east of road; iron post stamped "1910 Phnx"	1,910.313

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

From Glendale north to Arizona Canal, thence over Frog Tanks road and section line road to point 21.2 miles north of T. 4 N., R. 2 E., thence across desert to Agua Fria River, thence south to Agua Fria River bridge.

T. 3 N., R. 2 E., southeast corner of sec. 30, at southwest corner of crossroads; nail in root of large cottonwood tree	1,175.89
T. 3 N., R. 2 E., southeast corner of sec. 19, at southwest corner of crossroads; nail in root of cottonwood tree	1,184.56
Arizona Canal, 100 feet south of bridge, west side of public road; iron post stamped "1217 Phnx"	1,217.610
T. 4 N., R. 1 E., sec. 36; east quarter corner stone	1,238.35
T. 4 N., R. 1 E., sec. 25; southeast corner stone	1,248.55
T. 4 N., R. 1 E., east quarter corner of sec. 24; iron post stamped "1277 Phnx"	1,277.635
Agua Fria River, 850 feet west of wagon road, 150 feet east of giant cactus on edge of river, west side of road; iron post stamped "1267 Phnx"	1,267.403
Agua Fria River, 0.1 mile east of, Santa Fe, Prescott & Phoenix Ry. bridge, 40 feet east of track; iron post stamped "1151 Phnx"	1,151.708

In sec. 7, T. 2 N., R. 2 E.

T. 2 N., R. 2 E., northwest corner of sec. 7, southeast corner of crossroads; nail in root of large cottonwood tree	1,132.08
T. 2 N., R. 2 E., southwest corner of sec. 7, northwest corner of crossroads; nail in root of cottonwood tree	1,123.04

From sec. 30, T. 3 N., R. 1 E., to point 0.36 mile north of south line of sec. 31, T. 3 N., R. 1 E.

T. 3 N., R. 1 E., sec. 30, south quarter corner stone	1,104.68
T. 3 N., R. 1 E., 0.36 mile north of south line of sec. 31, 0.6 mile south of Desert road running west toward river; iron post stamped "1088 Phnx"	1,088.609

JEROME QUADRANGLE.

[Latitude 34° 30′–35°; longitude 112°–112° 30′.]

From Prescott south 2.2 miles.

Prescott, 2.2 miles south of, at intersection of Crown King and Jersey Lily roads, 225 feet south of bridge over small gulch; iron post stamped "5543 Prsct"	5,551.023

Near Fourmile house.

Sevenmile house, 0.2 mile southeast of, in forks of Lynx Creek, Prescott, and Lynx Creek dam roads; iron post stamped "5557 Prsct"	5,565.046
Fourmile house, 150 feet northeast of, at junction of Prescott, Lynx Creek, and Black Canyon roads; iron post stamped "5565 Prsct"	5,573.018

From Prescott along Santa Fe, Prescott & Phoenix Ry. to Jerome Junction.

Prescott, Prescott National Bank, south side of main entrance, top of southeast corner of square pedestal at foot of round column; flat surface	5,357.53
Prescott, 20 feet north of courthouse; iron post stamped "5346 Prsct"	5,354.014

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	Feet.
Prescott, 2.1 miles northeast of, 60 feet west of crossing of railroad by Mayer wagon road; iron post stamped "5248 Prsct"	5,255.863
Prescott, 6.5 miles northeast of, 50 feet east of P. & E. Junction, 20 feet east of Prescott & Eastern branch track, in granite rock 3 feet above track; aluminum tablet stamped "5125 Prsct"	5,132.314
Prescott, 9.6 miles northeast of, 3.1 miles northeast of P. & E. Junction, 50 feet west of track at road crossing; iron post stamped "4942 Prsct"	4,949.710
Prescott, 12.8 miles northeast of, 75 feet west of track at Granite, at middle of sidetrack; iron post stamped "4888 Prsct"	4,895.808
Jerome Junction, 2.9 miles south of, 60 feet west of track, on small ridge; iron post stamped "4794 Prsct"	4,801.432
Jerome Junction, 50 feet south of station, 25 feet east of Santa Fe, Prescott & Phoenix Ry. track; iron post stamped "4607 Prsct"	4,614.533

From Jerome Junction to Jerome along United Verde & Pacific Ry.

Jerome Junction, 2.9 miles east of, 75 feet north of railroad, on ridge; iron post stamped "4763 Prsct"	4,770.472
Jerome Junction, 5.9 miles east of, 75 feet northeast of crossing of railroad by wagon road, 25 feet northeast of road intersection; iron post stamped "4874 Prsct"	4,881.556
Davis, 50 feet southeast of, wagon road crossing; iron post stamped "5114 Prsct"	5,121.353
Summit, 125 feet west of section house, 90 feet west of track; iron post stamped "5491 Prsct"	5,498.319
Bodkin, 300 feet north of track, near end of Malpais Ridge; bronze tablet stamped "5424 Prsct"	5,431.957
Horseshoe, 125 feet south of head block, 75 feet west of and 30 feet higher than track, in limestone ledge; bronze tablet stamped "5821 Prsct"	5,828.593
First View, 50 feet south of track; iron post stamped "5931 Prsct"	5,938.466
Jerome, 2.7 miles northwest of, 500 feet north of section house, 75 feet east of track where it turns through limestone cut; bronze tablet stamped "5805 Prsct"	5,812.423
Chris spur, 200 feet east of railroad, limestone ledge; bronze tablet stamped "5669 Prsct"	5,676.029
Jerome, southeast corner of United Verde Copper Co.'s building (office), 8 inches above ground; aluminum tablet stamped "5428 Prsct"	5,435.869

From Davis on United Verde & Pacific Ry., southeast to Carter ranch, thence northeast via Yeager Canyon to Jerome.

Davis, 3 miles south of, 20 feet south of road; iron post stamped "5185 Prsct"	5,192.314
Carter ranch, 1.9 miles west of, 6.2 miles southeast of Davis, 25 feet north of road in forks of wash; iron post stamped "5430 Prsct"	5,437.423
Carter ranch, northwest corner of yard fence, north side of road; iron post stamped "5763 Prsct"	5,770.331
Sanders station, 2.9 miles northeast of, top of divide on Jerome and Prescott road, north side of road; iron post stamped "7025 Prsct"	7,032.292
Mescal, 400 feet south of abandoned station, 50 feet west of road, in ledge of limestone; bronze tablet stamped "6232 Prsct"	6,239.335
Mescal, 0.5 mile north of abandoned station, at top of divide, 20 feet east of road; bronze tablet stamped "6504 Prsct"	6,511.056
Mescal, 2.2 miles north of, 120 feet east of road; iron post stamped "6473 Prsct"	6,480.335

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	Feet.
Jerome, 1.1 miles west of, top of Smelter Hill, where road passes through top of ridge, 120 feet east of road; bronze tablet stamped "6269 Prsct"..	6,276.112
Jerome, 0.5 mile south of, summit of Red Hill above smelter, 1,000 feet east of converter pipe, 3 feet east of rock monument; bronze tablet stamped "6052 Prsct".....	6,059.170

From Carter ranch south to Dewey.

Carter ranch, 2.5 miles south of, 100 feet south of intersection of Prescott, Jerome, and Dewey roads; iron post stamped "5331 Prsct".....	5,338.340
Carter ranch, 5.3 miles south of, 25 feet west of road; iron post stamped "4979 Prsct".....	4,986.397
Dewey, 2.3 miles north of, 75 feet north of intersection of roads, 0.3 mile south of deserted ranch; iron post stamped "4686 Prsct".....	4,693.081
Dewey post office, Cherry Creek railroad station, 50 feet north of Hiltonbrandt house, by fence; iron post stamped "4548 Prsct".....	4,555.367

From Dewey west along Lynx Creek wagon road to Prescott.

Thomas ranch, 300 feet northwest of, 60 feet northeast of railroad crossing; iron post stamped "4652 Prsct".....	4,659.465
Thomas ranch, 4.1 miles northwest of, 30 feet south of road, at top of hill; iron post stamped "5126 Prsct".....	5,133.563
Lynx Creek, west bank of, 150 feet north of schoolhouse, 25 feet south of road; iron post stamped "5287 Prsct".....	5,294.605
Four Mile House, 150 feet northeast of, junction of Lynx Creek, Prescott, and Black Canyon roads; iron post stamped "5565 Prsct".....	5,572.818

From Mescal station (abandoned) down Mescal Canyon to abandoned sawmill, thence along trail on northwest side of Mescal Canyon via Legal Tender and Grand Prize shafts to E. L. D. shaft.

Mescal station, 0.8 mile east of, 200 feet north of abandoned sawmill, 75 feet west of cabin 60 feet north of trail, top of ledge of sandstone; bronze tablet stamped "6085 Prsct".....	6,092.344
Mescal station, 1.6 miles northeast of, east side of mountain, highest point of red rock ridge, 100 feet east of trail and E. L. D. shaft; bronze tablet stamped "6011 Prsct".....	6,018.701

From Jerome along wagon road to Cottonwood.

Jerome, northeast corner of T. F. Miller's store, 2 feet above sidewalk; aluminum tablet stamped "5153 Prsct".....	5,160.523
Jerome, 50 feet east of fork of road to cemetery and slaughterhouse, top of ridge near east end; iron post stamped "4887 Prsct".....	4,894.459
Jerome, at point where road strikes bottom of Deception Gulch (Walnut Gulch) in going from Jerome to Verde River, 100 feet north of creek, on southwest side of road; in large bowlder; bronze tablet stamped "4743 Prsct".....	4,750.755
Hinman's blacksmith shop, 0.5 mile east of, 100 feet southwest of road intersection; iron post stamped "3930 Prsct".....	3,937.662
Cottonwood post office (Strahan's store), 125 feet south of, 15 feet east of road; iron post stamped "3315 Prsct".....	3,322.461
Van Derien ranch, 150 feet west of, 75 feet northwest of road fork; iron post stamped "3276 Prsct".....	3,283.335

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From Cherry post office west along wagon road to Dewey.

	Feet.
Cherry post office, 3 miles east of, top of ridge overlooking Verde Valley, 40 feet north of road, granite outcrop; bronze tablet stamped "4817 Prsct"	4,824.855
Cherry post office (Battye ranch), 75 feet southwest of road, by fence; iron post stamped "5004 Prsct"	5,011.802
Cherry, 2.2 miles west of, top of divide, 25 feet south of road; iron post stamped "5441 Prsct"	5,448.610
Martin ranch, 2.8 miles east of, top of ridge, 25 feet north of road; iron post stamped "4776 Prsct"	4,783.917
Martin Rust ranch, west side of road, by corral fence; iron post stamped "4704 Prsct"	4,711.829
Dewey, 3.7 miles east of, top of divide, 25 feet south of road; iron post stamped "5066 Prsct"	5,073.710

From Jerome Junction north along Santa Fe, Prescott & Phoenix Ry. to Putney's limekiln road.

Jerome Junction, 2.6 miles north of, 110 feet west of railroad, west side of wagon road, near corner of fence and mileboard 36; iron post stamped "4507 Prsct"	4,514.646
Del Rio, 0.2 mile north of water tank, 45 feet east of railroad at road crossing, south side of wagon road; iron post stamped "4384 Prsct"	4,391.640
Del Rio, 1 mile north of, on railroad bridge, 55 feet above bed of Verde River; top of rail	4,366.3
Del Rio, 2.7 miles north of, 50 feet west of railroad, 50 feet east of wagon road, about level with track; iron post stamped "4400 Prsct"	4,407.452
Del Rio, 5.1 miles northeast of, 1 mile northeast of Valley siding, 100 feet north of track, north side of road; iron post stamped "4495 Prsct"	4,502.583

SANTA MARIA MOUNTAINS QUADRANGLE.

[Latitude 34° 30′–35°; longitude 112° 30′–113°.]

From point near Prescott on old stage road to Government Spring.

Prescott, 2.7 miles west of, top of small ridge, 50 feet south of road, in granite bowlder 3 feet in diameter; aluminum tablet stamped "5745 Prsct"	5,752.745

From Prescott along Simmons road to American ranch, thence along California stage road via Tonto Spring to Skull Valley.

Prescott, 3 miles northwest of, 100 feet north of railroad, 150 feet northwest of road fork, in granite bowlder 3 feet high; aluminum tablet stamped "5545 Prsct"	5,553.059
Blair ranch, 1.4 miles north of, 25 feet west of road, on top of ridge; iron post stamped "5484 Prsct"	5,491.860
American ranch, 2.6 miles southeast of, 25 feet north of road, on ridge; iron post stamped "5228 Prsct"	5,235.632
American ranch, 0.8 mile north of, 25 feet east of fork of road, on ridge; iron post stamped "5049 Prsct"	5,057.069
Hull ranch, 2.5 miles west of, summit of granite range, 25 feet south of road; iron post stamped "5540 Prsct"	5,547.956
Tonto Spring, 3.6 miles northeast of, 0.5 mile east of Skull Valley and Williamson Valley road, 250 feet north of road, in malpais rock 4 feet square and 3 feet high; bronze tablet stamped "5151 Prsct"	5,158.619
Tonto Spring, 0.5 mile northeast of, 100 feet northwest of road fork, at foot of granite ledge near its center; bronze tablet stamped "4856 Prsct"	4,863.850

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	Feet.
Tonto Spring, 2.9 miles south of, 40 feet east of road fork; iron post stamped "4732 Prsct"	4,739.835
Dixon ranch, 1 mile northeast of, 25 feet west of road; iron post stamped "4484 Prsct"	4,491.669
Dixon ranch, 0.5 mile southeast of, 300 feet southwest of main road, 75 feet south of road to Dixon ranch, granite bowlder 5 feet in diameter and 2 feet high; aluminum tablet stamped "4382 Prsct"	4,389.625
Skull Valley, 450 feet southwest of railroad station, west side of road, by fence; iron post stamped "4250 Prsct"	4,257.662
From Santa Fe, Prescott & Phoenix Ry. west along Putney's limekiln road to King's ranches, thence south through Simmons to a point 3.6 miles north of Tonto Spring.	
Putney ranch, 0.6 mile southeast of, in forks of road; iron post stamped "4385 Prsct"	4,392.620
King's lower ranch, 30 feet west of main gate, south side of road beside east-west section line, at fence; iron post stamped "4414 Prsct"	4,421.564
King's lower ranch, 2.1 miles west of, 25 feet southwest of cross-roads; iron post stamped "4470 Prsct"	4,477.330
King's upper ranch, 1 mile northwest of, east end of prominent ridge, south of Walnut Creek, about 0.5 mile west of creek in China Valley, about 0.7 mile northeast of east end of cedar ridge, 300 feet west of road; iron post stamped "4524 Prsct" (checked spur line)	4,531.588
King's lower ranch, 5.6 miles southwest of, 6.9 miles northwest of Simmons, 25 feet west of road on ridge, near a ridge covered with scattered cedar timber; iron post stamped "4632 Prsct"	4,639.498
Sullivan ranch, 0.7 mile northwest of lower house, 3.7 miles north of Simmons; in small valley between two cedar ridges, 25 feet west of road; iron post stamped "4529 Prsct"	4,536.307
Simmons, 100 feet west of post office, south side of road, by fence; iron post stamped "4542 Prsct"	4,549.265
Stephens ranch, by yard fence, east of gate; iron post stamped "4615 Prsct"	4,622.026
Stephens ranch, 2.3 miles south of, near foot of malpais ridge, 125 feet southeast of road at gate; aluminum tablet stamped "4690 Prsct"	4,697.263
Stephens ranch, 3.6 miles south of, 20 feet west of road, at gate in Stephens ranch south fence; iron post stamped "4738 Prsct"	4,745.866
From Stephens ranch west along wagon and Simmons-Kymo roads to Kymo, thence north along Cut-Off road and northeast along Walnut Creek to Jumper, thence east to point 6.9 miles north of Simmons.	
Cook ranch, 3 miles west of, 3.1 miles southeast of Humphrey ranch, on ridge at east side of big wash, 20 feet north of road; iron post stamped "4702 Prsct"	4,709.127
Humphrey ranch, 0.5 mile southeast of, 30 feet west of forks of Simmons Road; iron post stamped "4755 Prsct"	4,762.624
Humphrey ranch, 2.4 miles northwest of, 20 feet west of road near where road starts up hill; iron post stamped "4887 Prsct"	4,894.568
Kymo, 5.3 miles east of, on high ridge east of Pine Flat, 80 feet north of road; iron post stamped "6039 Prsct"	6,046.659
Pine Flat, 0.5 mile northwest of cabin, 20 feet south of road; iron post stamped "5708 Prsct"	5,715.424
Kymo post office (Ferguson ranch), 2 feet northwest of house, north side of road; iron post stamped "5888 Prsct"	5,895.351
Conger ranch, 0.5 mile south of, on top of divide, east side of road; iron post stamped "6090 Prsct"	6,097.303

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	Feet.
Warren ranch, north side of yard gate, 125 feet northeast of road; iron post stamped "6244 Prsct"	6,251.393
Warren ranch, 2 miles northwest of, top of divide at head of Walnut Creek watershed, 50 feet south of road; iron post stamped "6346 Prsct"	6,353.352
Hamilton ranch, 1.8 miles northwest of, 50 feet west of road, in granite ledge crossing road and creek at right angles; aluminum tablet stamped "5773 Prsct"	5,780.299
Drew ranch, 1 mile west of, 100 feet west of forks of Juniper Canyon and Camp Woods road; iron post stamped "5495 Prsct"	5,502.322
Connell ranch, 0.2 mile northwest of, north side of road in granite bowlder; aluminum tablet stamped "5343 Prsct"	5,350.439
Juniper, 50 feet northeast of post office, south side of road; iron post stamped "5158 Prsct"	5,165.551
Rogers ranch, north side of yard gate, north side of road; iron post stamped "4983 Prsct"	4,990.228
Rogers ranch, 2.7 miles southeast of, 25 feet north of road in gulch; iron post stamped "4881 Prsct"	4,888.137
Rogers ranch, 6.5 miles southeast of, 25 feet east of road on top of ridge, 0.5 mile south of where road leaves gulch; iron post stamped "4693 Prsct"	4,700.107

CAMP VERDE QUADRANGLE.

[Latitude 34° 30′–35°; longitude 111° 30′–112°.]

From Cottonwood down Verde River road via Oak Creek and Aultman to Cherry.

Oak Creek, 1.5 miles north of mouth of, 1,500 feet east of Verde River, 40 feet east of road; iron post stamped "3243 Prsct"	3,250.548
Verde River, at mouth of Oak Creek; surface of water	3,177
Aultman, 0.5 mile west of store, 500 feet west of Marr ranch, 75 feet south of road; iron post stamped "3183 Prsct"	3,190.365
Marr ranch, 3.1 miles west of, 40 feet north of intersection of Aultman, Cherry, and Camp Verde roads; iron post stamped "3616 Prsct"	3,623.557

CONGRESS QUADRANGLE.

[Latitude 34°–34° 30′; longitude 112° 30′–113°.]

From Skull south along Santa Fe, Prescott & Phoenix Ry. via Kirkland, Hillside, and Martinez to Wickenburg.

Wilson ranch, 950 feet north of railroad crossing; iron post stamped "4112 Prsct"	4,119.977
Kirkland, in front of Earnhart house, east side of road; iron post stamped "3927 Prsct"	3,934.903
Robinson ranch, east side of yard gate, south side of road; iron post stamped "3825 Prsct"	3,823.017
Grand View, 0.6 mile north of, 50 feet north of track at mileboard 93, near beginning of north side of loop, in malpais rock 3 feet in diameter and 18 inches high; aluminum tablet stamped "4084 Prsct"	4,091.682
Hillside, 3.9 miles east of, 75 feet north of track where railroad runs through cut, east of Bog Curve, 700 feet west of trestle 172; aluminum tablet stamped "4123 Prsct"	4,131.280
Hillside, east end of railroad station, at end of platform; iron post stamped "3845 Prsct"	3,853.133
Hillside, 2.4 miles south of, 0.3 mile northwest of mileboard 104, 75 feet west of track; iron post stamped "3754 Prsct"	3,762.003
Date Creek, 2.2 miles north of, west side of railroad at deep cut, 0.1 mile north of mileboard 107; iron post stamped "3584 Prsct"	3,591.689

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	Feet.
Date Creek, 0.2 mile south of section house, 150 feet west of railroad; 50 feet west of wagon road, on ridge 15 feet higher than track; iron post stamped "3367 Prsct"	3,375.039
Date Creek, 3 miles south of, 0.1 mile north of bridge 197, on top of hill 100 feet west of track, 250 feet east of wagon road, iron post stamped "3286 Prsct"	3,293.870
Piedmont, 0.1 mile north of north head block, 75 feet east of wagon road, 150 feet east of track, top of small hill; iron post stamped "3345 Prsct"	3,352.994
Martinez, 250 feet north of Congress pump house, on west side of railroad, at mileboard 119, in lower part of granite ledge; aluminum tablet stamped "3183 Prsct"	3,190.594
Congress Junction, 1.6 miles north of, between a gravel cut and a rock cut, east of trestle 223, 60 feet south of railroad, top of granite bowlder below level of track; aluminum tablet stamped "3094 Prsct"	3,101.994
Congress Junction, 0.3 mile north of station, 60 feet northwest of railroad crossing; iron post stamped "3032 Prsct"	3,039.853
Congress Junction, 3.3 miles south of, 50 feet east of railroad; iron post stamped "2825 Prsct"	2,833.258
Harquahala siding, 0.1 mile south of, 160 feet southwest of track at road crossing; iron post stamped "2595 Prsct"	2,603.559
Harquahala siding, 3.4 miles south of, at mileboard 133, 160 feet west of railroad; at iron post stamped "2384 Prsct"	2,392.476
Wickenburg, 2.7 miles northwest of, at Yavapai-Maricopa county line, 150 feet west of railroad; iron post stamped "2171 Prsct"	2,179.539

From Congress Junction southwest to Gibsons tank, thence southeast 6 miles, thence east to Harquahala.

Congress Junction, 2.5 miles west of, 30 feet north of road; iron post stamped "2933 Prsct"	2,941.094
Congress Junction, 5.3 miles west of, 60 feet southeast of crossroads; iron post stamped "2783 Prsct"	2,790.857
Congress Junction, 7.1 miles west of, at forks of road, 0.8 mile east of Gibson's tank, 30 feet south of road; iron post stamped "2728 Prsct"	2,736.087
Gibson's tank, 4 miles southeast of, 0.3 mile northeast of southeast end of small mountain range, 25 feet south of road; iron post stamped "2606 Prsct"	2,614.220
Gibson's tank, 6 miles southeast of, 3.6 miles west of Harquahala siding, 50 feet east of old road; iron post stamped "2637 Prsct"	2,645.138

From Kirkland southeast to Onyx quarry.

Kirkland, 1.5 miles southeast of, 100 feet northwest of fork of Stanton and Walnut Grove road, in black rock cliff; aluminum tablet stamped "3972 Prsct"	3,979.726
Kirkland, 2.9 miles southeast of, 85 feet northwest of fork of Placerita and Walnut Grove road; iron post stamped "4060 Prsct"	4,068.100

From Prescott west via Government Spring, Onyx quarry, Walnut Grove, and Wagoner to Campbell ranch.

Government Spring, 0.5 mile east of, 100 feet east of top of divide, 40 feet north of road, granite rock 3 feet high; bronze tablet stamped "6775 Prsct"	6,783.363
Copper Basin, 0.3 mile east of, 30 feet north of road; iron post stamped "5316 Prsct"	5,323.923
Copper Basin, 3 miles south of, foot of hill, west side of Copper Creek, 250 feet southwest of wagon road, northeast end of gray bowlder 15 feet long and 4 feet high; bronze tablet stamped "4740 Prsct"	4,748.326

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	Feet.
Onyx mine, 4.3 miles northeast of, top of ridge, 20 feet west of road; iron post stamped "4955 Prsct"	4,962.927
Onyx mine, 0.8 mile east of, 300 feet north of fork of Kirkland and Copper Basin road, granite bowlder 4 feet long and 1 foot high; aluminum tablet stamped "4556 Prsct"	4,564.010
Moor ranch, 1.8 miles north of, west side of road, on ridge; iron post stamped "4170 Prsct"	4,177.769
Craig post office, 200 feet north of, north side of road; iron post stamped "3764 Prsct"	3,772.189
Moor lower ranch, 0.2 mile south of, top of ridge, 20 feet west of road; iron post stamped "3589 Prsct"	3,597.179
Walnut Grove post office, 10 feet east of yard gate, south side of road; iron post stamped "3469 Prsct"	3,477.303
Wagoner post office, 150 feet north of east side of yard gate; iron post stamped "3372 Prsct"	3,380.285
Campbell ranch, 200 feet west of, east side of road; iron post stamped "3485 Prsct"	3,493.272

WICKENBURG QUADRANGLE.

[Latitude 33° 30′–34°; longitude 112° 30′–113°.]

From Wickenburg southeast along Santa Fe, Prescott & Phoenix Ry. to Nada.

Wickenburg, 300 feet north of station, 50 feet east of track at railroad restaurant; iron post stamped "2068 Prsct"	2,076.364
Wickenburg, in front of station; top of rail	2,070.6
Wickenburg, 1.7 miles south of, 75 feet northwest of track at road crossing; iron post stamped "2004 Phnx"	2,004.505
Wickenburg, 5 miles south of, 50 feet west of track, 0.3 mile south of mileboard 144; iron post stamped "1935 Phnx"	1,935.400
Hassayampa River, railroad bridge over, 33 feet above river bed; top of rail	1,858.6
Hot Springs Junction, 3 miles north of, 75 feet east of track, 0.2 mile south of bridge over Hassayampa River; iron post stamped "1865 Phnx"	1,865.354
Hot Springs Junction, in hotel yard, 75 feet east of track; iron post stamped "1971 Phnx"	1,971.441
Hot Springs Junction, 3.4 miles south of, 50 feet west of track, 0.5 mile south of mileboard 153; iron post stamped "1883 Phnx"	1,883.592
Nada, 25 feet east of signboard; iron post stamped "1697 Phnx"	1,696.933

Camels Back, Fort McDowell, Livingstone, and Roosevelt quadrangles.

MARICOPA AND GILA COUNTIES.

The elevations in the following list were originally based on an aluminum tablet stamped "1090" set in the north front of the Maricopa County courthouse at Phoenix, and accordingly all bench marks are stamped "Phnx" in addition to the figures of elevation. The corrected elevation of this bench mark is 1,090.410 feet above mean sea level.

The leveling was done in 1905 by Ress Philips.

CAMELS BACK QUADRANGLE.

[Latitude 33° 30′–33° 45′; longitude 111° 45′–112°.]

From point 7 miles northeast of Phoenix to point 10.5 miles west of Asher ranch.

	Feet.
Phoenix, 7 miles northeast of, 50 feet northeast of crossroads, at southwest corner of fence; iron post stamped "1197 Phnx"	1,197.379
Phoenix, 9 miles northeast of, 0.5 mile north of Arizona Canal, 30 feet west of road; iron post stamped "1282 Phnx"	1,282.205

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	Feet.
Phoenix, 13 miles northeast of, at junction of Cave Creek and Camp Creek roads; iron post stamped "1455 Phnx"	1,455.318
Phoenix, 16 miles northeast of, 0.75 mile west of old canal, 30 feet north of road; iron post stamped "1495 Phnx"	1,494.946
Desert Corral, 30 feet north of road; iron post stamped "1631 Phnx"	1,630.894
Desert Corral, 0.75 mile west of, at forks of Camp Creek and Tempe roads, 20 feet north of road, near large mesquite tree; iron post stamped "1892 Phnx"	1,891.820
Desert Corral, 6 miles northeast of, on bank of ravine running parallel with road, 30 feet north of road; iron post stamped "2204 Phnx"	2,203.838
Desert Corral, 9 miles northeast of, at point where road crosses deep, dry wash, 120 feet south of bottom of wash, 60 feet east of road, in bowlder; aluminum tablet stamped "2486 Phnx"	2,486.118
Asher ranch, 12.5 miles west of, on summit of low divide between Cave Creek and Verde River, 10 feet north of old road, in ledge; aluminum tablet stamped "2945 Phnx"	2,944.866

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904.

FORT McDOWELL QUADRANGLE.

[Latitude 33° 30′–33° 45′; longitude 111° 30′–111° 45′.]

From point 3.7 miles southeast of Arizona Dam to head gate of Arizona Canal.

	Feet.
Arizona Dam, 3.7 miles southeast of, at power house, in bridge over Arizona Canal; top of bolt	1,312.27
Head gate of Arizona Canal, northwest abutment; top of coping	1,330.35

Between the first and second of the following bench marks four lines were run, and from the fourth to the ninth, inclusive, two lines were run by I. J. Voorhees, but they depend on and are connected by a single line run in 1902 by R. E. Whipfler between points 3.7 miles below and 3.5 miles above Arizona Dam. The third and the Verde Dam site bench marks are on single-spur lines from the second.

From Arizona Dam up Salt River northeast to Verde River, thence east up Salt River to Tonto Dam site.

	Feet.
Arizona Dam, in top of masonry wing of Arizona Canal head gates; bronze tablet stamped "1330 Phnx"	1,330.375
Arizona Dam, 0.7 mile northeast of, west of mouth of Verde River north side of Salt River, on south side of road from Frazers to Cuba, south of large red butte and at west end of small red butte; bronze tablet stamped "1343 Phnx"	1,344.108
Arizona Dam, 1.5 miles northeast of, on road from Usery Pass to Cuba and Fort McDowell, about 450 feet west of ford in front of large red cliff facing Salt River 0.7 mile above its junction with Verde River, on rock ledge running out to river; bronze tablet stamped "1340 Phnx"	1,341.149
Arizona Dam, 4 miles east of, 600 feet northwest of Monroy ranch house, on granite ledge between river and high bluff, in rock; bronze tablet stamped "1382 Phnx"	1,382.881
Arizona Dam, 6.9 miles east of, on right bank of river, near high, blue bluff locally known as "Blue Point" facing river, in rock; bronze tablet stamped "1384 Phnx"	1,385.047

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	Feet.
Arizona Dam, 10.4 miles east of, on right bank of Salt River about midway between Canyon No. 1 and Canyon No. 2, about 1.5 miles below Stewart ranch, in granite outcrop; bronze tablet stamped "1434 Phnx"	1,434.944

From point 9.75 miles west of Asher ranch to point 9.5 miles south of McDowell.

Asher ranch, 9.75 miles west of, on south bank of wash where road crosses to right, 40 feet east of road, in bowlder; aluminum tablet stamped "2600 Phnx"	2,599.979
Asher ranch, 5.25 miles west of, 5 miles west of Verde River, at forks of roads, 10 feet west of road on north side of wash; iron post stamped "2175 Phnx"	2,174.900
Asher ranch, 3 miles west of, 2.25 miles west of Verde River road, 10 feet north of road; iron post stamped "1859 Phnx"	1,858.942
Asher ranch, 0.5 mile northwest of, at crossroads; iron post stamped "1572 Phnx"	1,570.905
Asher ranch, 4 miles south of, in forks of road at foot of hill; iron post stamped "1488 Phnx"	1,488.147
McDowell, 500 feet southeast of post office, at northeast corner of fence, 10 feet west of road; iron post stamped "1444 Phnx"	1,443.910
McDowell, 4 miles south and east of, 0.5 mile east of ford, on road from Phoenix to Reno Pass, at mouth of dry wash, at north end of small rocky ridge, in bowlder; aluminum tablet stamped "1424 Phnx"	1,423.714
McDowell, 6.25 miles south of, 400 feet south of old schoolhouse, 200 feet south of road, at foot of hill, in bowlder; aluminum tablet stamped "1402 Phnx"	1,402.224
McDowell, 9.5 miles south of, south side of Salt River, 0.5 mile above its junction with Verde River, 500 feet west of old ford on road to Cuba and Fort McDowell, near large bluff, on point running out into river; bronze tablet stamped "1340 Phnx"	1,340.549

From Fort McDowell east along Reno Pass road to Clanton ranch, thence south to Roosevelt (closure error excessive).

McDowell, 4.75 miles east of, 500 feet northeast of Adams ranch house, on hillside, 100 feet northeast of corral, 150 feet west of road, in bowlder; aluminum tablet stamped "1540 Phnx"	1,540.061
McDowell, 7.75 miles east of, 3 miles east of Adams ranch, 20 feet north of road; iron post stamped "1643 Phnx"	1,643.132
McDowell, 11.75 miles east of, on west side of and at foot of Sugar Loaf Mountain, at point where wagon road crosses creek, on west bank of creek, 50 feet east of road, 250 feet east of old corral, in large bowlder; aluminum tablet stamped "1786 Phnx"	1,785.953
McDowell, 14 miles east of, 1 mile north of point where road leaves creek, 50 feet west of road, on west bank of wash, in bowlder; aluminum tablet stamped "2214 Phnx"	2,213.708

ROOSEVELT QUADRANGLE.

[Latitude 33° 30′–34°; longitude 111°–111° 30′.]

From point 14.75 miles northeast of McDowell to Roosevelt.

McDowell, 16.75 miles northeast of, 1 mile east of divide, 200 feet south of point where road enters large wash, 15 feet east of road, 40 feet northeast of large willow tree, in bowlder; aluminum tablet stamped "2188 Phnx"	2,187.936
Oteros ranch, on south side of corral, 200 feet north of house, in root of dead sycamore tree; nail	2,137.171

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	Feet.
Oteros ranch, 1.5 miles northeast of, on south bank of Sycamore Creek, on north end of high black bluff reaching down to water; aluminum tablet stamped "2202 Phnx"	2,203.083
Round Valley, north side of, 500 feet north of point where wagon road crosses Sycamore Creek, 300 feet north of old house and corral, 20 feet south of road, top of small mesa, in top of granite bowlder; aluminum tablet stamped "2369 Phnx"	2,369.483
Round Valley, 3.5 miles northeast of, 5 feet east of road, on top of long grassy ridge, in bowlder; aluminum tablet stamped "3270 Phnx"	3,270.234
Sunflower ranch, 1.25 miles west of, 400 feet east of summit where wagon road crosses highest point between Round Valley and Sunflower ranch, at foot of rocky ridge, 20 feet north of road, in bowlder; aluminum tablet stamped "3780 Phnx"	3,780.486
Sunflower ranch, south side of, on west bank of Sycamore Creek, 500 feet east of gate to ranch, 10 feet north of road, in root of sycamore tree; nail	3,409.870
Sunflower ranch, 1 mile south of, 0.25 mile east of Sycamore Creek, where road crosses summit of ridge on north side of rocky butte, 100 feet south of road, on large bowlder; aluminum tablet stamped "3435 Phnx"	3,435.314
Reno Pass, on summit, 50 feet south of and 15 feet above wagon road, in ledge; aluminum tablet stamped "4723 Phnx"	4,723.444
Moore ranch, 0.5 mile west of, 15 feet north of road, on rocky slope at mouth of canyon; aluminum tablet stamped "2869 Phnx"	2,869.518
Moore ranch, 2.5 miles east of, 1 mile north of Clanton ranch, 0.5 mile south of perpendicular clay bank 700 feet high, 0.5 mile west of Tonto Creek, 50 feet west of old Reno Pass road, at east end of small ridge, in west edge of valley, in bowlder; aluminum tablet stamped "2355 Phnx"	2,355.121
Clanton ranch, 1 mile north of, on west side of Tonto Creek, 250 feet northwest of ford, in large cottonwood tree; nail	2,310.728
Clanton ranch, 2 miles north of, in road opposite deserted farm house, in base of sycamore tree; nail	2,334.247
Clanton ranch, 4 miles north of, on mesa 30 feet east of road, 500 feet north of wash, on bowlder; aluminum tablet stamped "2422 Phnx"	2,421.237
Clanton ranch, 5.25 miles north of, 30 feet east of road, in base of ironwood stump; nail	2,421.365
Howell ranch, 100 feet east of old Tonto post office, 30 feet east of road; iron post stamped "2488 Phnx"	2,488.351
Clanton ranch, in front of house 20 feet west of road, inside fence corner; iron post stamped "2300 Phnx"	2,300.526
Clanton ranch, 3 miles south of, 300 feet east of ford, 50 feet east of road, at foot of steep bank, on east side of old irrigating ditch, in bowlder; aluminum tablet	2,235.80
Cline post office, 400 feet east of, 30 feet west of road, at fence corner; iron post stamped "2191 Phnx"	2,191.503
Cline station, 300 feet south of, 15 feet west of road, in root of ironwood stump 8 feet high; nail	2,191.406
Cline station, 1.5 miles south of, 30 feet west of road, on smooth, level mesa, in buried stone 8 by 12 inches by 2 feet; aluminum tablet stamped "2197 Phnx"	2,197.825
Cline station, 3.75 miles south of, east side of Botticher ranch at gate, 30 feet west of road; iron post stamped "2093 Phnx"	2,093.183
Botticher ranch, 2 miles south of, 5 miles north of Roosevelt, 10 feet east of road, in stone flush with ground; aluminum tablet stamped "2028 Phnx"	2,028.215
Roosevelt, 3 miles north of, at foot of hill, 20 feet east of road, in bowlder; aluminum tablet stamped "1991 Phnx"	1,992.051

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	Feet.
Roosevelt, 1.5 miles north of, 100 feet north of forks of road, 50 feet north of fence corner, in base of cottonwood stump; nail	1,947.214
Roosevelt, east entrance of power house, 1 foot from east wall; iron post stamped "1986 Phnx"	1,985.916

From point 3.5 miles northeast of Government Well to point 20.2 miles east of Arizona Dam.

Government Well, 3.5 miles northeast of, 250 feet northeast of Camp Lonely, 20 feet east of road, in ledge; aluminum tablet stamped "2138 Phnx"	2,138.721

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

From point 12.8 miles east of Arizona Dam to Verde Dam site at Verde River.

	Feet.
Arizona Dam, 12.8 miles east of, on right bank of Salt River, 0.75 mile above Stewart ranch in Canyon No. 2, 250 feet from river bank, in rock ledge; bronze tablet	1,491.481
Arizona Dam, 16.2 miles east of, on left bank of Salt River, 50 feet from water's edge, in mouth of Canyon No. 3, at upper end of Bagley Flat, on large white granite outcrop; bronze tablet stamped "1492 Phnx"	1,492.862
Mormon Flat, 20.2 miles east of Arizona Dam, on right bank of Ash Creek 600 feet above its junction with Salt River, 90 feet northeast of large cottonwood tree on left bank of Ash Creek, set vertically in solid rock; bronze tablet stamped "1547 Phnx"	1,547.415

At Verde River.

Verde Dam site, at right bank of river, in rock; bronze tablet stamped "1337 Phnx"	1,337.202

From Roosevelt east to mouth of Grapevine Tunnel (bench marks of Reclamation Service).

Roosevelt, east bank of river, at dam site, cemented vertically in rock at center line of borings; brass tablet marked "1908 Phnx"	1,908.541
Roosevelt, west bank of river, at dam site, cemented vertically in rock at center line of borings; brass tablet stamped "1905 Phnx"	1,905.711
Roosevelt, northwest corner of boiler room of temporary power house, 1 foot from north wall; iron post stamped "1986 Phnx"	1,986.516
Roosevelt, 5 miles east of, on Windy Hill Divide, top of east bank of first canyon east of Porter Springs, 500 yards south of road; iron post stamped "2160 Phnx"	2,160.567
Roosevelt, 8 miles east of, at mouth of Grapevine Tunnel, power canal line; iron post stamped "2174 Phnx"	2,174.620

LIVINGSTONE QUADRANGLE.

[Latitude 33° 30′–34°; longitude 110° 30′–111°.]

From mouth of Grapevine Tunnel east to Livingstone (bench marks of Reclamation Service).

Roosevelt, 12 miles east of, east bank of Chilton Canyon, beside station 403, power canal line; iron post stamped "2143 Phnx"	2,143.556
Livingstone, 200 feet southeast of station 230, power canal, 250 feet west of Globe road; iron post stamped "2172 Phnx"	2,172.624
Livingstone, 3 miles east of, 15 miles east of Roosevelt, at Lee ranch, 2 feet east of corral 75 feet south of house; iron post stamped "2169 Phnx"	2,169.721
Livingstone, 5 miles east of, 17 miles east of Roosevelt, west entrance to box canyon, 300 yards east of junction of Pinal Creek and Salt River, 100 feet south of where trail leaves Salt River on the way to Shute's springs, in ledge; bronze tablet stamped "2198 Phnx"	2,198.677

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From Livingstone along Globe and Payson road to Horrell ranch near Globe.

	Feet.
Livingstone, on Livingstone Mesa, 200 feet southeast of station 230, power canal, 250 feet west of Globe road; iron post stamped "2172 Phnx"	2,172.624
Livingstone, 3 miles southeast of, on mesa, 20 feet north of Globe road, 300 yards north of Round Mountain; iron post stamped "2483 Phnx"	2,483.577
Livingstone, 6.75 miles southeast of, on ridge, 20 feet south of Globe road; 0.75 mile east of Danforth Hill; iron post stamped "3235 Phnx"	3,235.564
Livingstone, 9.75 miles southeast of, 20 feet north of Globe road, opposite Smith ranch, near Summit; iron post stamped "3980 Phnx"	3,980.586
Livingstone, 12 miles southeast of, 20 feet west of Globe road, half way between Summit and Wheatfields (Devore ranch); iron post stamped "3275 Phnx"	3,275.569
Wheatfields, 14 miles southeast of Livingstone, 5 feet from fence, north side of Globe road at Devore ranch; 100 feet west of house; iron post stamped "2855 Phnx"	2,855.643
Wheatfields, 3 miles south of, at Hicks ranch, 17 miles southeast of Livingstone, in front of circular corral on south side of road; iron post	2,990.632

Anita, Flagstaff, Grand View, and Williams 30′ quadrangles, in Chino and San Francisco Mountain 1° quadrangles.

COCONINO AND YAVAPAI COUNTIES.

The elevations in the following list are in agreement with 1912 adjustment elevations of bench marks between Ashfork and Flagstaff, established by the United States Coast and Geodetic Survey in 1909. Additional elevations in the Williams quadrangle are given under precise leveling (pp. 15–16).

The leveling in the Flagstaff quadrangle and part of the work in the other three quadrangles was done in 1907 by T. A. Green. Some leveling in the Anita and Grand View quadrangles was done in 1902 and 1903 by J. T. Stewart, and in these quadrangles and Williams quadrangle in 1904 by M. S. Bright.

WILLIAMS QUADRANGLE.

[Latitude 35°–35° 30′; longitude 112°–112° 30′.]

From Williams east along Atchison, Topeka & Santa Fe Ry. to Chalender.

	Feet.
Williams, 8 feet west of northwest corner of Grand Canyon Hotel; iron post stamped "6770 Canyon"	[1] 6,766,512
Williams, 0.57 mile east of, at junction with Grand Canyon Ry.; top of rail	6,752.7
Williams, 3.19 miles east of, 80 feet north of track, 65 feet northwest of milepost 375, 12 feet south of fence, in rock; aluminum tablet stamped "6952 1907"	[1] 6,950.662
Railroad bridge 375 A, south side, on southeast corner of east stone abutment	[1] 6,928.930
Davern siding, in front of sign block; top of rail	6,979.1
Williams, 6.35 miles east of, 786 feet east of milepost 372, at east end of Davern siding, on south side of railroad bridge 372 B, in southeast corner of east stone abutment; aluminum tablet stamped "6953 1907"	[1] 6,952.197

[1] Elevation by Coast and Geodetic Survey adjusted precise level line.

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From Williams north along Grand Canyon Ry. to Prado siding.

	Feet.
Williams, 2.25 miles north of, 1,700 feet south of milepost 2, at south end of cut, 40 feet west of track, in volcanic rock; aluminum tablet stamped "6753 Canyon"	6,749.019
Williams, 7.25 miles north of, 40 feet south of road crossing, 15 feet east of track, 10 feet west of wagon road; iron post stamped "6565 Canyon"	6,561.213
Williams, 10.5 miles north of, midway between mileposts 10 and 11, 20 feet north of road crossing, 3 feet south of telephone pole; iron post stamped "6463 Canyon"	6,459.461
Prado, 7.25 miles south of, 250 feet south of road crossing, 40 feet west of track, 6 feet south of milepost 13; iron post stamped "6252 Canyon"	6,248.284
Prado, 4.5 miles south of, 0.25 mile south of milepost 16, 240 feet south of bridge 14, 50 feet west of track, 30 feet east of wagon road; iron post stamped "6074 Canyon"	6,070.065

FLAGSTAFF QUADRANGLE.

[Latitude 35°–35° 30′; longitude 111° 30′–112°.]

From Chalender east along Atchison, Topeka & Santa Fe Ry. to milepost 340.

Chalender, 125 feet west of station, 50 feet west of tracks, 30 feet south of south end of snow fence, in rock; aluminum tablet stamped "6869 1907"	[1] 6,867.411
Chalender, in front of station; top of rail	6,869.4
T. 22 N., R. 4 E., sec. 32, 1.98 miles east of Chalender, 473 feet west of milepost 366, on north side of railroad bridge 367 A over wagon road, in northeast corner of stone abutment; aluminum tablet stamped "6852 1907"	[1] 6,850.354
Chalender, 4.05 miles east of, at milepost 364, north side of track, in top of west rack for emergency rail; nail	6,990.4
Maine (Rhodes post office), sec. 26, T. 22 N., R. 4 E., 90 feet north of station, 40 feet north of track, south side of pine tree, in rock; aluminum tablet stamped "7086 1907"	[1] 7,085.032
Maine, in front of station; top of rail	7,083.6
Maine, 1.99 miles east of, 350 feet east of half-mile post and section post 48 and 49, on north side of track, in east end of stone culvert 361 A; aluminum tablet stamped "7178 1907"	[1] 7,176.328
Arey siding, in front of signboard; top of rail	7,194.6
Maine, 4.48 miles east of, 0.57 mile east of Arey siding, 45 feet directly north of milepost 358, 5 feet south of fence, in rock; aluminum tablet stamped "7193 1907"	[1] 7,191.987
Bellemont, in front of station; top of rail	7,132.0
Bellemont, 0.31 mile east of station, 125 feet southwest of milepost 356, on east side of railroad bridge 357 A, in west end of east stone abutment; aluminum tablet stamped "7131 1907"	[1] 7,129.677
Bellemont, 3.32 miles east of, 100 feet southeast of milepost 353, 30 feet east of telephone pole, in rock; aluminum tablet stamped "7186 1907"	[1] 7,184.632
Riordan, in front of station; top of rail	7,311.7
Arizona Divide, in front of signboard; top of rail	7,313.1
Riordan, 0.69 mile east of, 466 feet east of road crossing, 403 feet west of milepost 350, in south end of east stone abutment of railroad bridge 351 A; aluminum tablet stamped "7273 1907"	[1] 7,272.131
Agassiz siding, in front of signboard; top of rail	7,107.9
Riordan, 3.61 miles east of, 0.3 mile east of Agassiz siding, 175 feet east of east end of switch, north side of track, 20 feet west of telegraph pole, in rock; aluminum tablet stamped "7091 1907"	[1] 7,089.271

[1] Elevation by Coast and Geodetic Survey adjusted precise level line.

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	Feet.
Flagstaff, 300 feet north of railroad, 20 feet south of front entrance to Citizens' Bank, in north end of south stone window sill; aluminum tablet stamped "6907 1907"	[1] 6,905.530
Flagstaff, in front of station; top of rail	6,896
Flagstaff, 2.1 miles east of, 60 feet west of milepost 342, on north end of east stone abutment of railroad bridge 343 A; cross	[1] 6,839.091
Flagstaff, 3.11 miles east of, 90 feet southwest of milepost 341, 60 feet south of track in rock, aluminum tablet stamped "6843 1907"	[1] 6,841.082

From Bellemont north along wagon road to Slate Mountain, thence west to sec. 6, T. 24 N., R. 5 E.

Bellemont, 3.03 miles north of, 80 feet east of road, on top of hill, in center of triangle formed by three pine trees, in rock; aluminum tablet stamped "7347 1907"	7,345.490
T. 22 N., R. 5 E., sec. 2, 0.45 mile north of Kipson ranch, 90 feet west of road, in pile of rocks; aluminum tablet stamped "7593 1907"	7,591.069
T. 23 N., R. 5 E., sec. 26, 3.01 miles north of Kipson ranch, 125 feet northeast of northeast corner of old ranch house, 50 feet south of wagon road, in rock; aluminum tablet stamped "7664 1907"	7,662.257
T. 23 N., R. 5 E., sec. 12, 5.9 miles north of Kipson ranch, 300 feet northeast of northeast corner of old cabin, 85 feet northeast of triangular group of pine trees, in rock; aluminum tablet stamped "7910 1907"	7,908.476
T. 24 N., R. 5 E., sec. 25, 1.05 miles northwest of Hibbon ranch, 45 feet south of road, in ledge of rock; aluminum tablet stamped "7843 1907"	7,841.637
T. 24 N., R. 5 E., secs. 14 and 15, 3.77 miles northwest of Hibbon ranch, 45 feet west of road, in east end of ledge of rock; aluminum tablet stamped "7387 1907"	7,385.638
T. 24 N., R. 5 E., sec. 5, 6.96 miles northwest of Hibbon ranch, on south side of road, on east side of shallow draw, in rock; aluminum tablet stamped "7001 1907"	6,999.233

From milepost 340 on Atchison, Topeka & Santa Fe Ry. near Greenlaw's mill north along wagon road to road fork north of Smith's tanks, thence west to point 6 miles north of Kipsons River.

Greenlaw's mill, 30 feet north of northwest corner of sawmill, on west side of pine tree 4 feet in diameter, 125 feet west of wagon road, in rock; aluminum tablet stamped "6850 1907"	6,848.155
T. 22 N., R. 8 E., sec. 21, 3.2 miles north of Greenlaw's mill, 70 feet east of road, north side of pine tree, in rock; aluminum tablet stamped "6792 1907"	6,790.703
T. 22 N., R. 8 E., sec. 9, 5.84 miles north of Greenlaw's mill, 20 feet east of road, 900 feet west of old cabin, in rock; aluminum tablet stamped "6723 1907"	6,721.714
T. 23 N., R. 8 E., sec. 29, 8.93 miles north of Greenlaw's mill, 80 feet east of road, just east of where road makes sharp bend to go up hill, in ledge of rock; aluminum tablet stamped "7125 1907"	7,123.726
T. 23 N., R. 8 E., sec. 17, 825 feet north of Jack Smith's tank, west side of road, in large outcrop of rock; aluminum tablet stamped "7196 1907"	7,194.150
T. 24 N., R. 8 E., sec. 6, 2.62 miles northwest of Jack Smith's tank, 25 feet south of road, in rock south of cedar bush; aluminum tablet stamped "7020 1907"	7,018.640
T. 24 N., R. 7 E., sec. 27, 5.71 miles northwest of Jack Smith's tank, 60 feet south of road, in rock beside rock monument; aluminum tablet stamped "6891 1907"	6,889.290

[1] Elevation by Coast and Geodetic Survey adjusted precise level line.

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	Feet.
T. 24 N., R. 7 E., sec. 16, 7.78 miles northwest of Jack Smith's tank, 35 feet south of road, near cedar bush, in rock in pile of rocks; aluminum tablet stamped "7067 1907"	7,065.053
T. 24 N., R. 7 E., sec. 9, 9.33 miles northwest of Jack Smith's tank, at main crossroads, north side of road just east of four corners, in rock; aluminum tablet stamped "7067 1907"	7,065.834
T. 24 N., R. 7 E., sec. 19, 3.09 miles southwest of crossroads, at main forks of road, 212 feet north of center of forks, in rock; aluminum tablet stamped "7432 1907"	7,429.921
T. 24 N., R. 6 E., sec. 36, 245 feet west of milepost 20, on south side of draw, 8 feet east of pine tree, in rock; aluminum tablet stamped "7740 1907"	7,738.259
T. 23 N., R. 6 E., sec. 4, 3.15 miles west of milepost 20, 20 feet west of cattle trail, in outcrop of rock; aluminum tablet stamped "7874 1907"	7,871.902
T. 23 N., R. 5 E., 5.9 miles north of Kipson ranch, 300 feet northeast of northeast corner of old cabin; aluminum tablet stamped "7910 1907"	7,908.476

From Flagstaff south along old Verde road to pump house, thence east to St. Marys Lake, thence northwest to Flagstaff.

Flagstaff, 3.09 miles south of, 70 feet east of road, in small draw, in rock; aluminum tablet stamped "6912 1907"	6,910.307
Flagstaff, 5.75 miles south of, 205 feet south of old railroad crossing, east side of wagon road, 75 feet northeast of fence corner; iron post stamped "6913 1907"	6,911.657
Pump house, at crossroads, on top of hill, east side of road, 20 feet north of four corners, in rock; aluminum tablet stamped "6751 1907"	6,749.115
Pump house, 3.05 miles east of, 45 feet north of road, 500 feet west of divide, in ledge of rock; aluminum tablet stamped "6929 1907"	6,927.438
Pump house, 6.06 miles east of, 50 feet south of wagon road, 5 feet south of old railroad grade, at sharp bend, in ledge of rock; aluminum tablet stamped "6814 1907"	6,812.175
St. Marys Lake, at northwest corner, 30 feet north of wagon road, 30 feet northwest of dam, in rock; aluminum tablet stamped "6809 1907"	6,807.780
St. Marys Lake, 3.06 miles northwest of, 10 feet north of road; iron post stamped "6883 1907"	6,881.692
St. Marys Lake, 5.82 miles northwest of, 20 feet south of road; iron post stamped "6908 1907"	6,906.686

From pump house west along wagon road to Oak Creek Canyon.

Flagstaff, 8.73 miles southwest of, on north side of road, 150 feet east of old house and barn, in rock; aluminum tablet stamped "6875 1907"	6,873.974
Flagstaff, 11.48 miles southwest of, 50 feet west of road, on north side of small draw, in rock; aluminum tablet stamped "6590 1907"	6,588.727
Oak Creek Canyon, on east rim where wagon road starts down into canyon, west side of road, in rock; aluminum tablet stamped "6413 1907"	6,411.365

GRAND VIEW QUADRANGLE.

[Latitude 35° 30′–36°; longitude 111° 30′–112°.]

From northwest corner of T. 24 N., R. 5 E., northwest to Ebert ranch.

Hibbon ranch, 8.99 miles northwest of, in open prairie, on east side of cattle trail, in root of cedar tree; nail marked "U. S. B. M. 6807"	6,805.51
Hibbon ranch, 10.18 miles northwest of, on west side of well-traveled wagon road running north and south, on rock; point marked "U. S. B. M. 6782"	6,780.10

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	Feet.
T. 25 N., R. 4 E., 10.7 miles northwest of Hibbon ranch, 90 feet east of road, 30 feet west of cedar tree, in rock; aluminum tablet stamped "6770 1907".	6,768.626
Hibbon ranch, 12.19 miles northwest of, on west side of road, point on rock marked "U. S. B. M. 6713"	6,711.68
T. 25 N., R. 4 E., 12.99 miles northwest of Hibbon ranch, on west side of road, south of divide, in flint rock; aluminum tablet stamped "6710 1907"	6,708.608
Hibbon ranch, 14.32 miles northwest of, at junction with dim road running southeast, on west side of road; point on rock; stake marked "U. S. B. M. 6545"	6,543.18
Hibbon ranch, 15.20 miles northwest of, on north side of road; top of small rock; large loose rock marked "6540 B. M."	6,537.91
Hibbon ranch, 15.51 miles northwest of, on north side of road, at sharp bend where road runs into woods; point on rock marked "U. S. B. M. 6519".	6,517.84

From Grand View Point south to Grand View, thence northeast to New Hance trail and down trail 1.2 miles.

Grand View Point, 150 feet north of cabin, west side of head of trail, in solid limestone ledge under rim; aluminum tablet stamped "7406 Canyon"	7,401.791
Grand View, 50 feet west of Grand View Hotel; iron post stamped "7496 Canyon"	7,491.483
Hance ranch, sec. 15, T. 30 N., R. 4 E., 150 feet southeast of old ranch house; iron post stamped "7186 Canyon"	7,181.732
Head of Red Canyon or New Hance trail, 20 feet west of limestone ledge, at rim of canyon; bronze tablet stamped "6982 Canyon"	6,977.751
Head of trail, 0.4 mile north of, on east side of trail, in red ledge at foot of cliff; bronze tablet stamped "6482 Canyon"	6,477.876
Head of trail, 0.8 mile north of, 20 feet east and 20 feet south of trail, in large sandstone bowlder; bronze tablet stamped "5882 Canyon"	5,877.399
Head of trail, 1.2 miles north of, 15 feet east of trail, in very large sandstone rock lying on sloping side of ravine; aluminum tablet stamped "5337 Canyon"	5,332.704

From Hance ranch east to point 1 mile west of Deer tank.

Hance ranch, sec. 15, T. 30 N., R. 4 E., 150 feet southeast of house; iron post stamped "7186 Canyon"	7,181.732
Hull'3 Tank, 2.25 miles east of, north side of canyon, 20 feet north of road, in limestone ledge; aluminum tablet stamped "6805 Canyon"	6,800.017
Hull's Tank, 5.25 miles east of, on slight north-south ridge, 5 feet north of road, in limestone outcrop flush with ground; aluminum tablet stamped "6693 Canyon"	6,687.801
Deer Tank, 1 mile west of, in loop of road on west side of small draw, in limestone outcrop; aluminum tablet stamped "6688 Canyon"	6,683.659

ANITA QUADRANGLE.

[Latitude 35° 30′–36°; longitude 112°–112° 30′.]

From Ebert ranch west along trails to milepost 19 on Grand Canyon Ry.

Ebert ranch, inside of inclosure around water tank, on south side, in rock; aluminum tablet stamped "6470 1907"	6,467.773
Ebert ranch, 1.07 miles west of; center of road at forks	6,377.91
Ebert ranch, 1.17 miles west of, 500 feet west of forks, on north side of road; point on rock, marked "U. S. B. M. 6381"	6,379.46

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	Feet.
Ebert ranch, 1.80 miles west of, 100 feet south of southeast corner of old cabin formerly occupied by William Pitts; point on rock; house marked "6413"	6,410.68
Ebert ranch, 2.83 miles west of, on north side of mesa; point on rock marked "U. S. B. M. 6309"	6,306.81
Ebert ranch, 3.41 miles west of, on north side of trail, 20 feet west of cedar tree, on north side of small draw, in red sandstone outcrop; aluminum tablet stamped "6304 1907"	6,301.827
Ebert ranch, 4.52 miles west of, on east side of cattle trail, in open draw; point on rock buried in ground marked "U. S. B. M. 6217"	6,215.21
Ebert ranch, 5.80 miles west of, on north side of trail, 35 feet west of clump of cedar trees, in rock buried in ground; aluminum tablet stamped "6163 1907"	6,161.338
Ebert ranch, 6.64 miles west of, on west side of trail; point on rock marked "U. S. B. M. 6182"	6,179.99
Ebert ranch, 7.70 miles west of, on north nose of Beals Hill, on south side of trail; point on rock marked "U. S. B. M. 6178"	6,175.68
Ebert ranch, 8.77 miles west of, in open prairie, 20 feet north of a cedar tree; point on rock marked "U. S. B. M. 6163"	6,160.63
Ebert ranch, 9.47 miles west of, on east side of cattle trail running directly southwest to Howards Lake, in rock buried in ground; aluminum tablet stamped "6165 1907"	6,162.744
Ebert ranch, 10.56 miles west of, on north side of trail, 30 feet northwest of cedar tree; point on rock marked "U. S. B. M. 6154"	6,152.32
Ebert ranch, 10.87 miles west of, on west side of cattle trail, near top of hill leading down to draw, in rock buried in ground; aluminum tablet stamped "6161 1907"	6,158.990
Ebert Ranch, 11.88 miles west of, on north side of trail, on top of hill; point on rock marked "U. S. B. M. 6175"	6,172.78
Howards Lake, 1.08 miles east of, 40 feet south of road, in rock; aluminum tablet stamped "6166 1907"	6,163.976
Howards Lake, on north side of fence around lake, on rock point; fence post marked "U. S. B. M. 6144"	6,142.05
Howards Lake, on west side of lake, 30 feet west of Grand Canyon wagon road, 600 feet north of house occupied by ranch overseer, 400 feet north of road forks, in rock; aluminum tablet stamped "6175 1907"	6,172.583
Howards Lake, 0.92 mile west of , 100 feet north of road forks, on north side of road running northwest; point on rock marked "U. S. B. M. 6117"	6,114.97
Howards siding, 0.75 mile north of, 1.5 miles south of Prado, on east side of railroad, 80 feet east of milepost 19; iron post stamped "6068 Canyon"	6,063.892

From Grand View northwest 1.8 miles.

Grand View Hotel, 1.8 miles northwest of, at Berry's pasture gate, 20 feet south of road; iron post stamped "7475 Canyon"	7,470.819

From Apex east to Grand View.

Coconino, 1.5 miles southeast of, at mileboard 56, 100 feet north of track; aluminum tablet stamped "6401 Canyon"	6,396.18
Apex, 0.5 mile north of, 50 feet southeast of crossing of track by wagon road; iron post stamped "6564 Canyon"	6,559.451
Rain Tank, 0.5 mile east of, 150 feet east of road fork, on top of limestone ledge; aluminum tablet stamped "6580 Canyon"	6,575.290

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	Feet.
Rain Tank, 3.7 miles northeast of, 50 feet southeast of road near big pine tree; iron post stamped "6702 Canyon"	6,697.226
Rain Tank, 7 miles east of, 4.5 miles west of Grand View Hotel, south side of road; iron post stamped "6881 Canyon"	6,876.130
Grand View Hotel, 2.2 miles southwest of, 20 feet east of road at forks; iron post stamped "7300 Canyon"	7,295.240

From Apex south along Grand Canyon Ry. to milepost 19.

Apex, 0.25 mile north of, 45 feet southeast of wagon and railroad crossing; iron post stamped "6564 Canyon"	6,559.451
Apex, 3 miles south of, 320 feet north of milepost 49, 40 feet west of track, south end of cut, 4 feet south of telephone pole, in limestone outcrop; aluminum tablet stamped "6397 Canyon"	6,392.254
Anita, 0.25 mile north of water tank, 200 feet west of water-car siding, east point of ridge, in limestone outcrop; aluminum tablet stamped "5982 Canyon"	5,977.492
Anita, 2 miles south of , 40 feet west of track, 30 feet east of wagon road, 2 feet south of milepost 43; iron post stamped "5850 Canyon"	5,845.837
Anita, 5 miles south of, 250 feet south of milepost 40, 75 feet east of track, 25 feet east of old wagon road, north side of low ridge, in limestone outcrop; aluminum tablet stamped "5816 Canyon"	5,812.145
Willaha, 0.75 mile south of, 40 feet west of track, 4 feet southwest of milepost 37; iron post stamped "5806 Canyon"	5,801.860
Willaha, 3.75 miles south of, 40 feet west of track, 3 feet south of milepost 34; iron post stamped "5798 Canyon"	5,793.771
Valle, 1.5 miles northwest of, midway between mileposts 30 and 31, top of ridge, 50 feet east of track, west edge of wagon road; iron post stamped "5871 Canyon"	5,867.033
Valle, 1 mile south of, 40 feet west of track, 4 feet west of milepost 28; iron post stamped "5908 Canyon"	5,903.843
Valle, 4 miles south of, 50 feet west of track, 2 feet west of milepost 25; iron post stamped "5962 Canyon"	5,958.075
Prado, 1.5 miles north of, 200 feet south of milepost 21, 400 west of track, 20 feet east of wagon road, 12 feet north of telephone pole; iron post stamped "6017 Canyon"	6,012.997
Prado, 1.5 miles south of, 60 feet east of milepost 19, 40 feet east of track; 10 feet east of wagon road; iron post stamped "6068 Canyon"	6,063.992

Bright Angel, Shinumo, and Vishnu quadrangles.

COCONINO COUNTY.

The elevations in the following list are based on an aluminum tablet in rim rock north of Bright Angel Hotel at Grand Canyon, stamped "6866 Canyon." The elevation of this bench mark is accepted as 6,861.609 feet, as determined by primary levels along the Grand Canyon Ry., corrected to elevations of bench marks at Williams by precise leveling of the United States Coast and Geodetic Survey.

The leveling was done by J. T. Stewart in 1902 and 1903, and by M. S. Bright in 1904.

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BRIGHT ANGEL QUADRANGLE.

[Latitude 36°–36° 15′; longitude 112°–112° 15′.]

From Grand Canyon southeast along stage road via Grand View Hotel to Zuni Point (Bissell Point).

	Feet.
Grand Canyon station, point on rim of canyon, 100 feet north of Bright Angel Hotel, in rim ledge; aluminum tablet stamped "6866 Canyon" ...	6,861.609
Grand Canyon, 3.4 miles southeast of, near northeast corner of sec. 1, T. 30 N., R. 2 E., 25 feet south of stage road; iron post stamped "6837 Canyon".	6,832.695
Grand Canyon, 6 miles southeast of, sec. 8, T. 30 N., R. 3 E., south side of road in Long Jim Draw; iron post stamped "6811 Canyon".....	6,806.667
Grand Canyon, 9.1 miles southeast of, near quarter corner west side of sec. 11, T. 30 N., R. 3 E., on bank near where road goes down into Long Jim Draw, 25 feet west of road; iron post stamped "7195 Canyon".....	7,190.787

From Grand Canyon north via Bright Angel trail down to Colorado River (single-spur line).

Bright Angel Hotel, 0.4 mile north of, west side of trail, in top of large rock detached from ledge; aluminum tablet stamped "6327 Canyon".....	6,322.427
Bright Angel Hotel, 0.7 mile north of, 15 feet north of trail, in large sandstone rock detached from ledge; aluminum tablet stamped "5866 Canyon".....	5,861.659
Bright Angel Hotel, 1.2 miles north of, west side of trail near bed of ravine, in reddish sandstone ledge 2 feet higher than trail; aluminum tablet stamped "5361 Canyon".....	5,356.305
Bright Angel Hotel, 1.5 miles north of, 25 feet north of trail, on rim of red wall, 50 feet northwest of ravine, in brown rock detached from ledge; aluminum tablet stamped "4850 Canyon".....	4,845.463
Bright Angel Hotel, 1.9 miles north of, 20 feet east of trail, below red wall, in small limestone rock; aluminum tablet stamped "4348 Canyon".....	4,343.923
Bright Angel Hotel, 2.8 miles north of, west side of trail, 100 feet west of ravine, limestone rock 3 feet high; bronze tablet stamped "3876 Canyon".	3,871.885
Bright Angel Hotel, 4.2 miles north of, rim of Granite Gorge at end of Plateau trail, 75 feet south of edge of rim, in quartzite ledge; aluminum tablet stamped "3708 Canyon" (on spur).....	3,703.724
Bright Angel Hotel, 3.9 miles north of, east edge of trail at top of granite near Salt Creek, in sandstone rock; bronze tablet stamped "3472 Canyon".	3,467.950
Bright Angel Hotel, 4.5 miles north of, east side of trail, in Pipe Creek, limestone rock opposite mouth of Salt Creek; bronze tablet stamped "2781 Canyon".....	2,776.725
Bright Angel Hotel, 5.4 miles north of; 100 feet northeast of mouth of Pipe Creek, high-water mark on south side of Colorado River, granite ledge; bronze tablet stamped "2436 Canyon".....	2,431.516
Mouth of Pipe Creek; surface of water of Colorado River June 6, 1902.....	2,412

From Grand Canyon west to Rowes Point, thence south to Rowes Well, thence west to Bass Camp.

Sentinel (Maricopa) Point, sec. 14, T. 31 N., R. 2 E., top of upper stratum of solid rock near point, on rim; aluminum tablet stamped "7050 Canyon"	7,045.387
Rowes Point (Hopi Point), Rowe triangulation station, sec. 14, T. 31 N., R. 2 E., 100 feet north of road to Rowes Point, 2 feet under surface, at foot of 10-inch stump 10 feet high; bronze tablet stamped "7071 Canyon".	7,066.511

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	Feet.
Rowes Well, near quarter corner on south side of sec. 28, T. 31 N., R. 2 E., 150 feet north of largest cabin, 40 feet north of Supai road, 30 feet west of Rowes Point road, in flat sheet limestone; aluminum tablet stamped "6681 Canyon"	6,676.724
T. 31 N., R. 2 E., SW. ¼ sec. 30, 2.7 miles southwest of Rowes Well, east edge of ridge, 200 feet west of old horse ranch, north side of road, in limestone ledge; aluminum tablet stamped "6462 Canyon"	6,457.765

From point 14.7 miles southeast of Bass Camp east to Bass siding.

T. 30 N., R. 1 E., NW. ¼ sec. 12, 3.5 miles west of Bass siding, in canyon, 50 feet north of road forks; aluminum tablet stamped "6211 Canyon"	6,206.568
South side of road, in root of 15-inch pine tree; nail	6,240.66
Bass siding, 100 feet north of road, SE. ¼ sec. 5, T. 30 N., R. 2 E., 250 feet northeast of camp, ledge in side of hill; aluminum tablet stamped "6417 Canyon"	6,412.307

VISHNU QUADRANGLE.

[Latitude 36°–36° 15′; longitude 111° 45′–112°.]

From head of Red Canyon on New Hance trail to Bissell Point (Zuni Point).

Moran Point, northern point of upper stratum of limestone at rim; aluminum tablet stamped "7157 Canyon"	7,152.174
Bissell Point (Zuni Point), top of stratum of limestone at rim; bronze triangulation tablet stamped "7284 Canyon"	7,279.587

From point 2.1 miles north of head of trail north to Colorado River.

Head of trail, 2.1 miles north of, north side of trail, at top of red wall, in limestone rock 8 feet square; aluminum tablet stamped "4955 Canyon"	4,950.926
Head of trail, 2.6 miles north of, 20 feet east of and 3 feet higher than trail, in white limestone rock; aluminum tablet stamped "4292 Canyon"	4,287.809
Head of trail, 3.2 miles north of, east side of trail, east of junction of two ravines, in sandstone rock in side of hill; aluminum tablet stamped "3665 Canyon"	3,660.315
Head of trail, 4.1 miles north of, 1 mile south of Colorado River, on west side of ravine and east side of trail, in large stripped sandstone rock; aluminum tablet stamped "2999 Canyon"	2,994.424
Head of trail, 5.1 miles north of, 300 feet northeast of Hance River camp, 21 feet above high-water mark on south bank of Colorado River, in sloping sandstone; aluminum tablet stamped "2614 Canyon"	2,609.665
Colorado River, at head of Granite Rapid; high-water mark	2,590
Colorado River; surface of water June 24, 1902	2,571

From point 1 mile west of Deer Tank northeast to Comanche Point.

Deer Tank, 2.8 miles northwest of, 100 feet south of point where road crosses to west side of canyon, 40 feet west of road, on west side of canyon, in top of limestone ledge about 12 feet above road; aluminum tablet stamped "6817 Canyon"	6,812.446
Deer Tank, 5.5 miles north of, north point of ridge, 100 feet east of point where road drops into canyon, 20 feet north of road, in limestone outcrop; aluminum tablet stamped "6452 Canyon"	6,447.360
Comanche Point, top of south edge of monument in lime rock; aluminum tablet stamped "7079 Canyon"	7,074.644

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SHINUMO QUADRANGLE.

[Latitude 36° 05′–36° 20′; longitude 112° 15′–112° 30′.]

From point 12.6 miles southeast of Bass Camp northwest to Bass Camp.

	Feet.
Bass Camp, 12.6 miles southeast of, 3.6 miles west of Deserted Horse ranch, 50 feet south of road, limestone rock 12 inches high; aluminum tablet stamped "6340 Canyon"	6,335.053
T. 31 N., R. 1 E., sec. 19, 10 miles southeast of Bass Camp, 50 feet northwest of the intersection of Bass-Bass Siding and Bright Angel-Supai roads; bronze tablet in rock stamped "6235 Canyon"	6,230.551
T. 31 N., R. 1 E., near quarter corner on west side of sec. 7, 6.7 miles southeast of Bass Camp, top of ridge in big patch of sage; iron post stamped "6372 Canyon"	6,367.738
T. 22 N., R. 1 W., NE. ¼ sec. 35, unsurveyed, 4.8 miles southeast of Bass Camp, north side of road on canyon rim; bronze tablet stamped "6519 Canyon"	6,514.946
Bass Camp, 2.6 miles southeast of, 25 feet west of gate, in pasture fence; iron post stamped "6568 Canyon"	6,563.543
Bass Camp, 1.5 miles southeast of, 200 feet south of road to Havasupai Point, Bass triangulation station; bronze tablet stamped "6780 Canyon"	6,775.365

From Bass Camp north along Mystic Spring trail, across Colorado River, and north via Shinumo Camp to rim of Kaibab Plateau (single-spur line).

Bass Camp, 0.5 mile north of, west side of trail above cistern, near top of cross-bedded sandstone; aluminum tablet stamped "6146 Canyon"	6,141.511
Bass Camp, 1 mile north of, east side of trail, in sandstone rock; aluminum tablet stamped "5635 Canyon"	5,630.607
Bass Camp, 2.1 miles north of, top of plateau, on west side of trail, at foot of sandstone ledge; aluminum tablet stamped "5376 Canyon"	5,371.612
Bass Camp, 2.7 miles north of, west side of trail, in Aubrey sandstone; aluminum tablet stamped "4857 Canyon"	4,851.977
Bass Camp, 3.1 miles north of, west side of trail, in red wall; aluminum tablet stamped "4360 Canyon"	4,354.999
Bass Camp, 3.8 miles north of, north side of trail, near foot of red wall; aluminum tablet stamped "3824 Canyon"	3,820.024
Bass Camp, 4.5 miles north of, west side of trail, in reddish rock, near top of bank; aluminum tablet stamped "3345 Canyon"	3,340.141
Bass Camp, 5.4 miles north of, on west side of trail, near Rock Camp, in sandstone rock; aluminum tablet stamped "2842 Canyon"	2,837.493
Bass Camp, 6.5 miles north of, southwest side of river, south side of trail, in granite ledge at high-water mark of Colorado River; aluminum tablet stamped "2230 Canyon"	2,225.690
Bass Ferry; surface of Colorado River at 4.30 p. m., March 20, 1903	2,196
Bass Ferry; bottom of Colorado River	2,144
Bass Ferry, north side of river, top of gorge 30 feet south of trail; aluminum tablet stamped "2272 Canyon"	2,267.382
Bass Ferry, 1 mile northwest of, top of ridge on way to Shinumo Creek, north side of trail; aluminum tablet stamped "2923 Canyon"	2,918.415
Shinumo Camp, on sandstone rock; aluminum tablet stamped "2483 Canyon"	2,478.173
Shinumo Camp, 1.1 miles above, 50 feet south of trail, 75 feet south of creek; aluminum tablet stamped "2674 Canyon"	2,669.513
Shinumo Camp, 1.6 miles above, on point of high sandstone bluff, east of trail, near Blue Dick claim; aluminum tablet stamped "3156 Canyon"	3,151.558

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	Feet.
Shinumo Camp, 3.3 miles above, north side of Moab Canyon, north side of trail; aluminum tablet stamped "3486 Canyon"	3,481.445
Shinumo Camp, 4.7 miles above, south side of sharp bend, near fall in Moab Canyon; aluminum tablet stamped "4006 Canyon"	4,001.523
Shinumo Camp, 5.6 miles above, south side and 150 feet above bottom of Moab Canyon; aluminum tablet stamped "4527 Canyon"	4,522.135
Shinumo Camp, 5.9 miles above, high point of limestone north of trail near big piñon tree; aluminum tablet stamped "5012 Canyon"	5,007.497
Shinumo Camp, 7 miles above, south of trail where it returns to Moab Canyon, on top of red wall; aluminum tablet stamped "5181 Canyon"	5,176.422
Shinumo Camp, 8 miles above, south side of trail, in dry gulch; aluminum tablet stamped "5697 Canyon"	5,692.830
Shinumo Camp, 8.4 miles above, on slide about half way between gulch and foot of cross-bedded sandstone, east side of trail, in sandstone rock; aluminum tablet stamped "6262 Canyon"	6,257.200
Shinumo Camp, 8.9 miles above, in saddle at head of Moab Canyon, near point where trail forks for Powell and Kaibab plateaus, yellow sandstone rock; aluminum tablet stamped "6717 Canyon"	6,712.189
Shinumo Camp, 9 miles above, between saddle and rim of Kaibab Plateau, north side of trail, in sandstone ledge; aluminum tablet stamped "7057 Canyon"	7,052.309
Shinumo Camp, 9.3 miles above, north rim of canyon where trail comes out on Kaibab Plateau, known as Swampy Point, 35 feet east of rim, 50 feet south of trail, three witness trees blazed and painted, flat quartzite rock; aluminum tablet stamped "7523 Canyon"	7,518.037
From Bass Camp south along Ashfork road to point 9.8 miles south of Bass Camp (mean of two lines).	
Bass Camp, on rim of canyon, 100 feet from house; aluminum tablet stamped "6652 Canyon"	6,647.149
Bass Camp, 3.9 miles southwest of, 25 feet east of intersection of Bass-Ashfork and Bright Angel-Supai roads; iron post stamped "6302 Canyon"	6,297.616
T. 31 N., R. 1 W., 30 feet south of quarter corner on south side of sec. 4, 6.7 miles south of Bass Camp, east side of road, at end of rocky point; aluminum tablet stamped "6154 Canyon"	6,149.811
T. 31 N., R. 1 W., about south side of sec. 21, 9.8 miles south of Bass Camp, 15 feet west of road, near a clump of trees on ridge; iron post stamped "6012 Canyon"	6,007.290
From bench mark 6302 (forks) west along Supai road to gate of Indian pasture.	
Bass Camp, 6.5 miles southwest of, 25 feet north of road; iron post stamped "6144 Canyon"	6,139.403
Bass Camp, 9 miles southwest of, 25 feet northeast of gate at Indian pasture; iron post stamped "6129 Canyon"	6,124.331
From forks south of Bass Camp southeast to point 3.5 miles west of Bass siding.	
T. 32 N., R. 1 W., S. ½ sec. 35, 6.7 miles southeast of Bass Camp, 25 feet west of forks of Supai and old Bass siding roads; iron post stamped "6412 Canyon"	6,407.463
T. 31 N., R. 1 W., near center of sec. 13, 9.7 miles southeast of Bass Camp, 100 feet east of road forks, limestone ledge; aluminum tablet stamped "6243 Canyon"	6,238.487
Bass Camp, 12.4 miles southeast of, 25 feet west of road, top of ridge; iron post stamped "6221 Canyon"	6,216.431
Bass Camp, 14.7 miles southeast of, 5.5 miles northwest of Bass siding, 20 feet southeast of road fork; iron post stamped "6213 Canyon"	6,208.578

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Castle Dome, Ehrenberg special, Needles special, Parker, Picacho, Quartzsite, Wellton, and Yuma quadrangles.

MOHAVE AND YUMA COUNTIES.

The elevations in the following list are based on a double-rodded primary-level line from San Bernardino to Yuma, based upon the United States Coast and Geodetic Survey precise-level line from mean sea level at San Diego. Additional elevations in the Yuma and Wellton quadrangles are given in the precise-leveling lists from Yuma east along the Southern Pacific R. R. Elevations in the California part of these quadrangles are given in Bulletin 342.

Most of the leveling in the Yuma and Wellton quadrangles was done in 1902–3 by G. L. Gordon and C. J. Hoover. A part of the work in the Blaisdell quadrangle was done in 1903 by L. D. Ryus. The leveling in the Picacho and Ehrenberg quadrangles was done in 1903 by C. Hartman, Gordon, and Ryus, in the Quartzsite quadrangle and the quadrangle south of it in 1903 by Ryus, and in the Parker quadrangle in 1902–3 by Hartman. The leveling in the Needles special quadrangle was done in 1902 by Morrison, Hartman, and S. E. Blout.

In 1909 the Coast and Geodetic Survey precise-level line along the Atchison, Topeka & Santa Fe Ry. redetermined bench marks near Mellen and Franconia. The Coast and Geodetic Survey 1912 adjustment values are given in the Needles special quadrangle.

YUMA QUADRANGLE.

[Latitude 32° 30′–33°; longitude 114° 30′–115°.]

From Yuma south along county road to Mexican boundary and return.

	Feet.
Yuma, railroad bridge, in east end of second pier; aluminum tablet stamped "137 S. B."	138.100
T. 8 S., R. 23 W., southwest corner of sec. 31, iron post stamped "118 Y".	118.616
T. 9 S., R. 24 W., sec. 1, 6.5 miles southwest of Yuma, triangulation station Eta; bronze tablet stamped "129 Y"	129.568
Somerton, T. 9 S., R. 24 W., southeast corner of sec. 33; iron post stamped "101 Y"	101.942
T. 10 S., R. 24 W., south side of sec. 14, trangulation station Beta; bronze tablet stamped "160 Y"	160.320
T. 10 S., R. 24 W., sec. 32, triangulation station Gamma; bronze tablet stamped "148 Y"	148.507
T. 10 S., R. 24 W., 4.5 feet south of southwest corner of sec. 32; iron post stamped "136 Y"	136.507
Monument 205, United States and Mexico boundary line, in foundation, on United States side; top of bolt	90.438
Monument 204, United States and Mexico boundary line, 6 feet north of; iron post stamped "138 Y"	138.889
Monument 204, base of masonry	138.3
Monument 204, 5.1 miles east of, 1.7 miles south of township line; iron post stamped "163 Y"	163.316
T. 10 S., R. 23 W., southeast corner of sec. 36; iron post stamped "285 Y"	285.761

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	Feet.
T. 10 S., R. 23 W., sec. 24, triangulation station; bronze tablet stamped "291 Y"	291.791
T. 9 S., R. 23 W., southeast corner of sec. 36; iron post stamped "203 Y"	203.784
T. 9 S., R. 23 W., northeast corner of sec. 1; iron post stamped "216 Y"	216.754

From Yuma southeast along Southern Pacific R. R. to Blaisdell.

T. 9 S., R. 22 W., sec. 3, at milepost 740; iron post stamped "213 Y"	213.866

From milepost 740 to triangulation station Kappa and return.

T. 8 S., R. 22 W., sec. 33, triangulation station Kappa; bronze tablet stamped "216 Y"	216.733

From Yuma northeast to point near Laguna.

T. 8 S., R. 23 W., sec. 28, 1.2 miles south of Yuma, triangulation station Azimuth; aluminum tablet stamped "297 Y"	297.275
T. 8 S., R. 22 W., northeast corner of sec. 17, 1.5 feet southwest of stake; iron post stamped "144 Y"	144.751

WELLTON QUADRANGLE.

[Latitude 32° 30′–33°; longitude 114°–114° 30′.]

From Blaisdell east along Southern Pacific R. R. to Gila City.

Blaisdell, southeast corner of railroad station; iron post stamped "188 Y"	188.904
Gila City, southwest corner of station; iron post stamped "189 Y" (reported destroyed)	190.347

From Blaisdell south to Fortuna and west to southwest corner of T. 10 S., R. 22 W.

Blaisdell, 6 miles southwest of, west side of road; iron post stamped "403 Y"	403.621
Fortuna, northwest corner of post office; iron post stamped "746 Y"	746.696
Fortuna, 6 miles west of; iron post stamped "433 Y"	434.304
Fortuna, 11 miles west of; iron post stamped "299 Y"	300.178

From Fortuna southwest 8 miles (single-spur line).

Fortuna, 5 miles southwest of; iron post stamped "509 Y"	509.868
Fortuna, 8 miles southwest of; iron post stamped "432 Y"	432.723

From Gila City northwest along road and trail to point near Laguna.

Gila City, 6.2 miles northwest of, at summit of pass between Gila and Colorado rivers, southwest side of trail; iron post stamped "307 Y"	307.789
Laguna, 0.5 mile south of, at point of hill, east side of road; iron post stamped "152 Y"	152.436

From point near Laguna north to Castle Dome landing.

Laguna, 4.5 miles northeast of, west side of road; iron post stamped "150 Y"	150.482
Laguna, 9.3 miles northeast of, at point of low hill, west side of road; iron post stamped "173 Y"	173.290
Castle Dome landing, Arizona side of river, south of foot of bluff; iron post stamped "170 Y"	170.575

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PICACHO QUADRANGLE.

[Latitude 33°–33° 30′; longitude 114° 30′–115°.]

From Castle Dome northwest to Picacho, Cal.

	Feet.
Castle Dome landing, 6 miles northwest of, 15 feet west of road; iron post stamped "175 Y"	175.755

From point opposite Picacho, Cal., north along road to Trigo Wash.

Mexican smelter, near, 500 feet east of river, at base of mountain, 25 feet east of wagon road; iron post stamped "189 Y"	190.258
East side of wagon road, at south end of canyon, at beginning of long flat, in solid rock; bronze tablet stamped "213 Y"	214.326
"Pilot Rock," 0.5 mile south of, 300 feet east of river, 15 feet east of wagon road, at base of decayed rock mountain; bronze tablet stamped "211 Y"	212.449
Adobe house, 0.5 mile south of, 500 feet east of river, east side of wagon road; iron post stamped "244 Y"	244.740
Mrs. Hart's ranch, 2.5 miles north of, on west side of wagon road, in mesquite brush; iron post stamped "215 Y"	215.647
Seeley ranch, 4 miles east of river, on west side of wagon road; iron post stamped "226 Y"	226.530
Mule Wash, on low mesa at north end of, 500 feet east of river, 500 feet north of triangulation station, on Arizona side; iron post stamped "252 Y"	252.132
Trigo Wash, north side of, 500 feet northeast of river, in large mesquite trunk; bronze tablet stamped "258 Y"	258.501

EHRENBERG SPECIAL QUADRANGLE.

[Latitude 33° 30′–34°; longitude 114° 30′–115°.]

From Trigo Wash north to Ehrenberg.

Ehrenberg, 5 miles south of, on sand mesa, south of triangulation station; bronze tablet stamped "286 Y"	286.513
Ehrenberg, opposite post office, 125 feet west of S. M. Wilson's store, 100 feet east of river landing; iron post stamped "274 Y"	274.828

From Ehrenberg north along road to first water station south of Parker.

Ehrenberg, 3 miles north of, on north end of mesa; iron post stamped "295 Y"	296.015
La Pas, 3 miles north of, 0.3 mile west of sand hills, on east side of Ehrenberg road; iron post stamped "286 Y"	286.722
La Pas, 7 miles north of, east side of Ehrenberg road, top of divide, 0.5 mile west of sand hills; iron post stamped "317 Y"	317.035
La Pas, 12 miles north of, 3 miles east of Colorado River, at base of projection of mountain, at south end of sand flat, in rock; bronze tablet stamped "311 Y"	311.449
La Pas, 18 miles north of, west side of Ehrenberg road, north end of long open sand flat, 0.2 mile west of sand hills; iron post stamped "319 Y"	320.268
Parker, 11 miles south of, 0.1 mile north of first water station south of Parker, west side of Ehrenberg road, beside mesquite tree; iron post stamped "325 Y"	326.449

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From Ehrenberg northeast to Halfway Well.

	Feet.
Ehrenberg, 8 miles northeast of, at low hill point, 15 feet south of road; iron post stamped "747 Y"	747.964
Ehrenberg, 11.1 miles northeast of, 40 feet south of Halfway Well, on road to Tysons; iron post stamped "1004 Y"	1,004.914

From Ehrenberg southeast 5 miles (single-spur line).

Ehrenberg, 4 miles southeast of, 12 feet north of road; iron post stamped "619 Y"	619.926

QUARTZSITE AND CASTLE DOME QUADRANGLES.

[Latitude 33° 30′–34°; longitude 114°–114° 30′.] [Latitude 33°–33° 30′; longitude 114°–114° 30′.]

From Halfway Well east to Quartzsite, thence south to Weaver Pass.

Quartzsite, in front of Quartzsite Mining & Smelting Co.'s store, northwest corner of fence; iron post stamped "871 Y"	872.197
Quartzsite Mining & Smelting Co.'s store, 6.25 miles south of, 50 feet east of road, on gravel mesa; iron post stamped "1025 Y"	1,024.600
Quartzsite Mining & Smelting Co.'s store, 11.38 miles south of, 300 feet south of wash, 20 feet west of junction of Yuma and King of Arizona mine roads; iron post stamped "1125 Y"	1,125.639
Weaver Pass summit, 20 feet west of road, iron post stamped "1304 Y"	1,305.055

PARKER QUADRANGLE.

[Latitude 34°–34° 30′; longitude 114° –114° 30′.]

From water station north to Parker, thence northeast to Bill Williams Fork, thence northwest to point near Liverpool landing.

Parker, 5 miles south of, on west side of Ehrenberg road; iron post stamped "344 Y"	345.264
Parker, 300 feet southwest of agency building; iron post stamped "352 Y"	352.834
Parker, 2.5 miles north of, 0.5 mile east of river, on wagon road running to Parker; iron post stamped "424 Y"	424.939
Empire Flat, 1 mile south of north end of, 300 feet west of trail; iron post stamped "376 Y"	376.293
Empire Flat, 2.5 miles north of, 0.75 mile south of big wash, 75 feet east of river, in ledge of rock; bronze tablet stamped "378 Y"	378.179
Bill Williams Fork, 1,000 feet north of, 500 feet east of river, in rock; bronze tablet stamped "391 Y"	391.469
Bill Williams Fork, at north end of second flat, 5.2 miles north of, 300 feet east of river, on trail; aluminum tablet stamped "406 Y"	406.376
Bill Williams Fork, 9 miles north of, at flat 2.5 miles long and 0.1 mile east of river, near dry stream, on trail at south end of flat; bronze tablet stamped "405 Y"	405.181
Triangulation signal, 0.5 mile northeast of, 200 feet west of river, on California side, in ledge of rock; bronze tablet stamped "417 Y"	417.619
Pittsburg landing, at sharp bend in river, 500 feet east of river, in rock on top of small hill; bronze tablet stamped "439 Y"	439.704
Liverpool landing, about 1 mile northeast of, 1 mile east of Colorado River, 50 feet east of highwater trail, on top of mesa; bronze tablet stamped "441 Y"	441.331

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NEEDLES SPECIAL QUADRANGLE.

[Latitude 34° 30′–35°; longitude 114° 15′–114° 45′.]

From Liverpool landing north to Mellen.

	Feet.
Mellen, 15 miles south of, in sand flat 0.5 mile wide surrounded by sand hills, signal flag stands on top of sand hills 100 feet northwest; iron post stamped "428 Y"	428.213
Mellen, 5 miles south of, 15 feet northeast of Colorado River, in large ledge of rock projecting from side of high hill; bronze tablet stamped "465 Y"	465.781
Mellen, east end of bridge over Colorado River, south abutment; bronze tablet stamped "504 Y 1902" (Coast and Geodetic Survey adjusted elevation)	504.772

From Mellen east along Atchison, Topeka & Santa Fe Ry. to Franconia.

Powell, 7 miles east of Mellen, north side of track, 75 feet north of station board; iron post stamped "762 Y"	762.502
Franconia, north side of track, 30 feet south of section house; iron post stamped "1101 Y" (Coast and Geodetic Survey adjusted elevation)	1,100.814

From Mellen north along road to Spears Lake, thence west to Needles, Cal.

Powell Lake, 0.4 mile west of lake and 1 mile north of south end, 50 feet east of road, 200 feet south of road fork west; iron post stamped "444"	451.671
Needles, 4.5 miles east of, 0.25 mile north of Rosenburg ranch, at windmill, 0.25 foot northwest of signboard on old tie in open flat, about 1.75 miles south of Mesa; iron post stamped "453"	460.552

From Needles, Cal., north along county road in Arizona to Fort Mohave.

Needles, 1 mile east of, on east side of Colorado River, 17 feet north from fence of W. J. Sweeney's house, 116 feet east of front of house; iron post stamped "463 Y 1903"	463.697
Needles, 6 miles north of, on east side of road leading to Fort Mohave; iron post stamped "467 Y"	467.857
Needles, 11 miles north of, on west side of road leading to Fort Mohave; iron post stamped "479 Y"	479.932

Camp Mohave quadrangle.

MOHAVE COUNTY.

The elevations in the following list are based on an iron post stamped "Y 540," set 5 feet east of the flagstaff on the drill ground at the Fort Mohave Indian Training School. Its elevation is accepted as 540.735 feet above mean sea level.

The leveling from Fort Mohave to Bulls Head dam site was done by C. R. Oldberg and afterwards checked by Goyne Drummond, both of the Reclamation Service.

The leveling from Bulls Head dam site to the head of Cottonwood Valley and return was done by Drummond. The circuit was closed at Bulls Head.

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CAMP MOHAVE QUADRANGLE.

[Latitude 35°-36°; longitude 114°-115°.]

From Fort Mohave north to a point 23 miles from Bulls Head dam site.

	Feet.
Fort Mohave, on drill ground of Indian training school, 5 feet east of flagstaff; iron post stamped "540 Y"	540.735
Bulls Head road, 1 mile south of Hardyville, in cairn of rocks on east side of road; iron post stamped "Y 538"	538.5
Bulls Head road, at junction of sheep trail and Kingman road, 50 feet from ruins of adobe house; iron post stamped "Y 522"	522.3
Bulls Head dam site, at Arizona bank of gaging station, in wall rock; bronze tablet stamped "Y 531"	531.3
Bulls Head dam site, at upper dam site, on Arizona bank, in wall rock; copper tablet marked "Y 514"	515.2
Bulls Head, 2.5 miles north of, 60 feet west of Pyramid Rock, in rock ledge; bronze tablet stamped "Y 555"	556.1
Bulls Head, 6 miles north of, 2 feet west of trail, on rock 2 by 2 feet; bronze tablet marked "Y 547"	548.1
Bulls Head, 9 miles north of, 10 feet east of trail, in rock by cairn of stones; bronze tablet marked "Y 556"	557.1
Bulls Head, 13.5 miles north of, 400 feet east of Colorado River, on gravel bank, in rock 2 by 2 feet; bronze tablet stamped "Y 576"	577.5
Bulls Head, 16.6 miles north of, 1 mile east of house on island, in black rock; bronze tablet stamped "Y 584"	584.9
Bulls Head, 23.3 miles north of, 5 miles northeast of Quartette stamp mill, in rocky point; bronze tablet stamped "Y 561"	561.9

Nutrioso quadrangle.

GREENLEE COUNTY.

The elevations in the following list were determined by primary leveling and accord with the 1912 adjustment. Orthometric and rod corrections have been applied.

The leveling was done in 1915 by R. W. Burchard.

NUTRIOSO QUADRANGLE.

[Latitude 33° 30′—34°; longitude 109°—109° 30′.]

From the Arizona-New Mexico boundary along road southwest down Blue River to Caspers Ranch.

	Feet.
Luna, 11.6 miles south of, at Bishop's and Williams's ranch, 20 feet north of house, west side of road, in base of cottonwood tree; copper nail and washer, painted "6376"	6,376.83
Luna, 12.8 miles south of, 50 feet east of road, on point of ridge, in top of large rock outcrop; bronze tablet stamped "6320"	6,320.747
Luna, 14.1 miles south of, Bishop's and Williams's old lumber shed, in top of sill in northeast corner; copper nail and washer, painted "6231"	6,231.65
Luna, 14.4 miles south of, at mouth of box canyon, north side of road; top of very large round black bowlder, painted "6196"	6,197.16
Luna, 15.9 miles south of, west side of road, on point of rock ridge, in point of rock outcrop; bronze tablet stamped "6085"	6,086.536

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Luna, 18.1 miles south of, east side of road, 200 feet west of W. C. Martin's ranch house, in top of large stump; copper nail and washer, painted "5940" 5,941.32

Luna, 19.1 miles south of, west side of road, in top of large detached bowlder, 2,000 feet north of and opposite Blue ranger station; bronze tablet stamped "5853" 5,854.282

Luna, 19.8 miles south of, east side of road, opposite and 1,000 feet south of Blue ranger station; top of very prominent gray bowlder, painted "5824" 5,825.19

Dunn's ranch, 20.9 miles south of Luna, 300 feet west of house, west side of road, in top of mail-box post; copper nail and washer, painted "5767" 5,768.36

Blue post office, east side of road, 200 feet west of store, at foot of approach to same, in rock ledge; bronze tablet stamped "5699" 5,699.834

Blue post office, 1.7 miles south of, east side of road, in base of large pine tree; copper nail and washer, painted "5597" 5,597.72

Blue post office, 2.7 miles south of Thompson's ranch, in front of gate; top of black, detached bowlder, painted "5551" 5,552.46

Blue post office, 3.7 miles south of, 200 feet northwest of road, in open flat, in top of larger of two large detached bowlders; bronze tablet stamped "5507" 5,508.576

Blue post office, 4.7 miles south of, at A. J. Hale's ranch, in southeast corner of ranch house; copper nail and washer, painted "5449" 5,550.15

Blue post office, 6.5 miles south of, at Blake's ranch, in southeast corner of yard, in base of corner fence post; copper nail and washer, painted "5366" 5,366.89

Blue post office, 6.9 miles south of, west side of road at upper end of gorge, in top of largest of three very large detached conglomerate bowlders; bronze tablet stamped "5354" 5,354.656

Blue post office, 7.7 miles south of, in front of Hodge's ranch house, in base of gatepost; copper nail and washer, painted "5286" 5,287.09

Blue post office, 8.2 miles south of, west side of road, in base of large pine tree; copper nail and washer, painted "5213" 5,214.56

Blue post office, 9.7 miles south of, at junction of Blue River and "K. P." Creek; top of bowlder in creek, painted "5137" 5,138.54

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APPENDIX A.

ELEVATIONS ADJUSTED BY THE UNITED STATES COAST AND GEODETIC SURVEY FROM PRECISE LEVELING.

Adamana, Canyon Diablo, Cross Mountain, Flagstaff, Houck, Hualpai, Kingman, Pichaco Butte, Pinto, Powell, St. Joseph, Sunset Knoll, Williams, and Winslow quadrangles.

APACHE, COCONINO, MOHAVE, NAVAJO, AND YAVAPAI COUNTIES.

The following descriptions and elevations of bench marks established by the United States Coast and Geodetic Survey are published by permission of the superintendent of that bureau. They were included in the 1912 adjustment by the Coast and Geodetic Survey and the elevations are likely to be changed but little by any future adjustment.

POWELL (NEEDLES SPECIAL) QUADRANGLE.

[Latitude 34° 30′-35°; longitude 114°-114° 30′.]

From Topock easterly along Atchison, Topeka & Santa Fe Ry. to Haviland, thence northerly along same railroad to point near Kaster.

	Feet.
Topock, opposite station, 4.3 meters west of point for loading cattle, 7.3 meters south of center of track, 2.3 meters from telegraph pole; bottom of square hole in top of stone post marked "U. S. B. M." (C. & G. S. b. m. A).	504.694
Topock, 2.3 miles east of, at milepole 563½, in culvert bridge B 564; in coping stone at northeast corner of bridge, 4.45 meters north of center of track, 26 centimeters from face and 28 centimeters from end of coping; copper bolt (C. & G. S. b. m. B)	530.225
Topock, 3 miles east of, five poles east of milepole 563, in steel-girder bridge C 563; in coping stone at northwest corner of bridge, 3.1 meters north of center of track, 40 centimeters from face and 1 meter from end of coping; red metal disk (C. & G. S. b. m. C)	564.182
Powell, 1 mile west of, opposite milepole 560, 23.7 meters south of center of track, 1½ meters below grade; top of iron post (C. & G. S. b. m. D)	703.838
Franconia, 2.2 miles east of, at east end of 3° curve, in culvert bridge B 551, in coping at northeast corner of bridge, 5.3 meters north of center of track, 10 centimeters from face and 10 centimeters from end of coping, 1 meter below grade; bottom of square hole (C. & G. S. b. m. E)	1,249.643
Franconia, 2.5 miles east of, in steel-girder bridge A 551, in north end of east abutment, 3.8 meters north of center of track, 36 centimeters from face and 43 centimeters from end of wing wall; red metal disk (C. & G. S. b. m. F)	1,266.986

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	Feet.
Franconia, 2.7 miles east of, at milepole 550, in steel-girder bridge C 550, in north end of west abutment, 3.4 meters north of center of track, 45 centimeters from face and 170 centimeters from end of wing wall; bottom of square hole (C. & G. S. b.m. G)	1,267.179
Franconia, 3 miles east of, in steel-girder bridge B 550, in north end of east abutment, 3.6 meters north of center of track, 43 centimeters from face and 78 centimeters from end of wing wall; bottom of square hole (C. & G. S. b. m. H)	1,283.048
Haviland, 3 miles west of, 4 poles east of milepole 549, in culvert bridge C 549, in north end of west abutment, 3.6 meters north of center of track, 12 centimeters from face and 15 centimeters from end of coping; bottom of square hole (C. & G. S. b.m. I)	1,330.633
Haviland, 1 mile east of, 5½ poles west of milepole 545, in culvert bridge A 546, in coping stone at northwest corner of bridge, 6 meters north of center of track, 12 centimeters from face and 12 centimeters from end of coping, 1.5 meters below grade; bottom of square hole (C. & G. S. b. m. J)	1,503.166
Haviland, 1.5 miles east of, in steel-girder bridge A 545 over Dry Creek, in north end of west abutment, 2.93 meters north of center track, 42 centimeters from face of abutment; red metal disk (C. & G. S. b. m. K)	1,533.340
Haviland, 2.5 miles east of, 8 poles east of milepole 544, in culvert bridge A 544, in coping stone at northeast corner of bridge, 2.8 meters north of center of track, 15 centimeters from face and 20 centimeters from end of coping; bottom of square hole (C. & G. S. b. m. L)	1 595.482
Yucca, 2.8 miles west of, in steel-girder bridge C 543, in south end of east abutment, 2.6 meters south of center of track, 35 centimeters from face and 40 centimeters from end of abutment; copper bolt (C. & G. S. b. m. M)	1 646.696
Yucca, 1.8 miles west of, 1½ poles east of milepole 548, in bridge C 542, in north end of west abutment, 2.6 meters north of center of track, 35 centimeters from face and 40 centimeters from end of abutment; bottom of square hole (C. & G. S. b. m. N)	1,692.631
Yucca, 1 mile west of, 5 poles west of milepole 541, in culvert bridge A 542, in coping stone at northeast corner of bridge, 3.74 meters north of center of track, 20 centimeters from face and 20 centimeters from end of coping, 1.5 meters below grade; copper bolt (C. & G. S. b. m. O)	1,745.892
Yucca, 300 meters east of passenger station, 2 poles west of milepole 540, in culvert bridge A 541, in coping stone at northeast corner of bridge, 3.8 meters north of track, 23 centimeters from face and 24 centimeters from end of coping; copper bolt (C. & G. S. b. m. P)	1,807.322
Yucca, 0.2 mile east of, 6½ poles east of milepole 540, in steel-girder bridge A 540, in north end of east abutment, 4.1 meters north of center of track, 40 centimeters from face and 40 centimeters from end of coping; red metal disk (C. & G. S. b. m. Q)	1,823.717
Yucca, 2 miles north of, 5 poles west of milepole 538, in concrete-arch bridge A 539, in coping at northeast corner of bridge, 5.5 meters north of center of track, 10 centimeters from face, 14 centimeters from end of coping, 1.5 meters below grade; bottom of square hole (C. & G. S. b. m. R)	1,933.772
Kaster, 1.2 miles south of, 12 poles west of milepole 532, in steel-girder bridge A 535, in north end of west abutment, 3.6 meters north of center of track, 40 centimeters from face and 60 centimeters from end of coping stone, 1 meter below grade; red metal disk (C. & G. S. b. m. S)	2,279.297

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KINGMAN QUADRANGLE.

[Latitude 35°-35° 30′; longitude 114°-114° 30′.]

From point near Kaster northerly along Atchison, Topeka & Santa Fe Ry. to point near Berry.

	Feet.
Drake, 1.4 miles south of, 17 poles north of milepole 529, in steel-girder bridge B 529, in west end of south abutment, 3.8 meters west of center of track, 38 centimeters from face and 40 centimeters from end of coping stone, 1 meter below grade; red metal disk (C. & G. S. b. m. T)	2,516.642
Drake, 6 poles south of milepole 527, 4 poles south of section house, 19.4 meters west of center of track, 1 meter below grade; top of iron pipe (C. & G. S. b. m. U)	2,608.689
Drake, 1 mile north of, 1.5 poles south of milepole 526, in culvert bridge A 527, in coping at southwest corner of bridge, 2.72 meters west of center of track, 29 centimeters from face and 32 centimeters from end of coping; copper bolt (C. & G. S. b. m. V)	2,646.314
Drake, 2.4 miles north of, 8 poles north of milepole 525, in steel-girder bridge B 525, in coping stone at west end of north abutment, 3.6 meters west of center of track, 36 centimeters from face and 72 centimeters from end of coping, 1 meter below grade; bottom of square hole (C. & G. S. b. m. W)	2,699.516
Hancock (Gold Flat post office), 2½ poles south of milepole 524, in culvert bridge A 525, in coping at northwest corner of bridge, 3.66 meters west of center of track, 16 centimeters from face and 25 centimeters from end of coping, 1 meter below grade; bottom of square hole (C. & G. S. b. m. X)	2,752.032
McComico, 0.5 mile south of, 17 poles south of milepole 721, in steel-girder bridge A 222; in coping at west end of south abutment, 2.82 meters west of center of track, 29 centimeters from face and 32 centimeters from end of coping; copper bolt (C. & G. S. b. m. Y)	2,899.239
Kingman, 1.3 miles south of, 8½ poles north of milepole 518, in culvert bridge C 518, in coping at center of west side of bridge, 3.6 meters west of center of track, 18 centimeters from face and 196 centimeters from north end of coping; bottom of square hole (C. & G. S. b. m. Z)	3,229.288
Kingman, in railroad station, in south wall, at southeast corner of ticket office, 4.57 meters north of center of main track, 1.25 meters from ground, 20 centimeters from edge of wall; red metal disk (C. & G. S. b. m. A 1)	3,340.781
Kingman, at south side of South Front Street, opposite railroad freight station, 59 meters east of east line of Fourth Street, 59.3 meters south of center of main track, 2.9 meters from fence line, 4.2 meters from a telephone pole; bottom of square hole in top of stone post (C. & G. S. b. m. B 1)	3,329.951

HUALPAI QUADRANGLE.

[Latitude 35°-35° 30′; longitude 113° 30′-114°.]

From point near Berry northeasterly along Atchison, Topeka & Santa Fe Ry. to point near Cherokee.

Berry, 3 poles east of milepole 510, 15.9 meters south of station sign, 25.9 meters south of center of track, 1 meter below grade; top of iron pipe (C. & G. S. b. m. C 1)	3,375.295
Hualpai, 1.8 miles southwest of, 4 poles west of milepole 503, in culvert bridge A 504, in coping at northwest corner of bridge, 4.3 meters north of center of track, 15 centimeters from face and 15 centimeters from end of coping, 1.5 meters below grade; copper bolt (C. & G. S. b. m. D 1)	3,266.103

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	Feet.
Hualpai, 1 pole west of milepole 501½, in culvert bridge A 502, in coping at northeast corner of bridge, 3.8 meters north of center of track, 15 centimeters from face and 20 centimeters from end of coping, 1 meter below grade; red metal disk (C. & G. S. b. m. E 1)	3,299.117
Hualpai, near east switch, 26.8 meters east of first pole east of milepole 502, 26 meters south of center of track, at grade; top of iron pipe (C. & G. S. b. m. F 1)	3,319.986
Hualpai, 1.3 miles northeast of, near milepole 500, in culvert bridge A 501, in coping at northwest corner of bridge, 4 meters north of center of track, 5 centimeters from face and 12 centimeters from end of coping; bottom of square hole (C. & G. S. b. m. G 1)	3,354.058
Hualpai, 2.3 miles northeast of, 2½ poles east of milepole 499, in steel-girder bridge C 499, in north end of west abutment, 2.70 meters north of center of track, 34 centimeters from face and 60 centimeters from end of coping stone; red metal disk (C. & G. S. b. m. H 1)	3,419.846
Antares, one pole west of milepole 495, in culvert bridge A 496, in coping at northwest corner of bridge, 3.68 meters north of center of track, 10 centimeters from face and 13 centimeters from end of coping, 2 meters below grade; bottom of square hole (C. & G. S. b. m. I 1)	3,605.567
Hackberry, 1.7 miles west of, 10½ poles east of milepole 491, in culvert bridge C 491, in coping stone at southeast corner of bridge, 3.67 meters south of center of track, 30 centimeters from face and 38 centimeters from end of coping, 1 meter below grade; red metal disk (C. & G. S. b. m. J 1)	3,555.544
Hackberry, 0.3 mile west of, in steel-girder bridge A 490, in north end of west abutment, 2.7 meters north of center of track, 33 centimeters from face and 53 centimeters from end of coping stone; red metal disk (C. & G. S. b. m. K 1)	3,544.222
Hackberry, in yard of first house west of railroad station, in southeast corner of yard, 0.8 meter from corner post, 15.3 meters north of center of track, 34.3 meters from southwest corner of station; bottom of hole in top of stone post (C. & G. S. b. m. L 1)	3,553.887
Hackberry, 0.9 mile east of, 3 poles west of milepole 488, in culvert bridge A 489, in center of coping at north side of bridge, 20 centimeters from face, 3.24 meters north of center of track; bottom of square hole (C. & G. S. b. m. M 1)	3,591.659
Tinnaka (Truxton post office), at Truxton Canyon Indian School, in masonry foundation at southeast corner of main dormitory, in east wall, 50 centimeters from corner, 87 centimeters from ground; red metal disk (C. & G. S. b. m. N 1)	3,820.442
Crozier, 10 poles west of milepole 481, near station sign and 7.5 meters east of it, 6.6 meters north of center of track, 1 meter below grade; top of iron post (C. & G. S. b. m. O 1)	3,969.028
Crozier, 1.9 miles east of, in steel-girder bridge D 480, in north end of west abutment, 2.6 meters north of center of track, 41 centimeters from face and 70 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. P 1)	4,123.601
Truxton siding, 0.5 mile west of, 6 poles west of milepole 478, in steel-girder bridge A 479, in north end of west abutment, 3.17 meters north of center of track, 40 centimeters from face and 20 centimeters from end of coping stone; bottom of square hole (C. & G. S. b. m. Q 1)	4,190.786

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YAVAPAI MOUNTAINS QUADRANGLE.

[Latitude 35°30′-36°; longitude 113°-113° 30′.]

From point near Cherokee easterly along Atchison, Topeka & Santa Fe Ry. to point near Yampai.

	Feet.
Cherokee, 1.4 miles east of, 7 poles west of milepole 470, in steel-girder bridge A 471, in north end of west abutment, 2.8 meters north of center of track, 33 centimeters from face and 52 centimeters from end of coping; copper bolt (C. & G. S. b. m. R 1)	4,546.421
Peach Springs, 2.3 miles west of, 6 poles west of milepole 569, in steel-girder bridge B 570, in north end of west abutment, 2.56 meters north of center of track, 42 centimeters from face and 60 centimeters from end of coping; red metal disk (C. & G. S. b. m. S 1)	4,609.656
Peach Springs, 5 poles east of milepole 466, in southwest corner of orchard adjoining railroad station, 1.4 meters from corner post, 7.5 meters north of center of track; bottom of square hole in top of stone post marked "U. S. B. M." (C. & G. S. b. m. T 1)	4,787.802
Nelson, 4 poles west of milepole 459, in steel-girder bridge A 460, in north end of west abutment, 3.1 meters north of center of track, 35 centimeters from face and 30 centimeters from end of coping; bottom of square hole (C. & G. S. b. m. U 1)	5,116.112
Nelson, 1.3 miles east of, near milepole 458, in steel-girder bridge E 458, in north end of west abutment, 3.4 meters north of center of track, 44 centimeters from face and 75 centimeters from end of coping stone; red metal disk (C. & G. S. b. m. V 1)	5,218.283
Yampai, 2.1 miles west of, at milepole 454, in culvert bridge B 454, in coping at northwest corner of bridge, 3.4 meters north of center of track, 10 centimeters from face and 12 centimeters from end of coping; bottom of square hole (C. & G. S. b. m. W 1)	5,453.653

CROSS MOUNTAIN QUADRANGLE.

[Latitude 35°-35° 30′; longitude 113°-113° 30′.]

From point near Yampai southeasterly along Atchison, Topeka & Santa Fe Ry. to point near Chino.

Yampai, 2 poles east of milepole 452, 32 meters west of section house, 19.6 meters north of center of track; top of iron post (C. & G. S. b. m. X 1)	5,583.742
Yampai, 2.9 miles southeast of, at milepost 549, in culvert bridge A 450, in coping at northeast corner of bridge, 3.9 meters north of center of track, 12 centimeters from face and 12 centimeters from end of coping, 1 meter below grade; copper bolt (C. & G. S. b. m. Y 1)	5,396.407
Pica, 2.2 miles southeast of, 4 poles east of milepole 445, in culvert bridge A 445, in coping at northwest corner of bridge, 3.6 meters north of center of track, 8 centimeters from face and 15 centimeters from end of coping, 1.5 meters below grade; bottom of square hole (C. & G. S. b. m. Z 1)	5,209.875
Pica, 4 miles southeast of, 1½ poles west of milepole 443, in culvert bridge A 444, in coping at northeast corner of bridge, 4.6 meters north of center of track, 14 centimeters from face and 15 centimeters from end of coping, 2 meters below grade; copper bolt (C. & G. S. b. m. A 2)	5,189.773
Audley, 1.5 miles northwest of, at milepost 441, in culvert bridge A 441, in coping at northwest corner of bridge, 4.15 meters north of center of track, 15 centimeters from face and 18 centimeters from end of coping, 1.5 meters below grade; copper bolt (C. & G. S. b. m. B 2)	5,177.470
Audley, 1½ poles west of milepole 439, 14.4 meters north of center of track, at grade; top of iron post (C. & G. S. b. m. C 2)	5,152.559

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Audley, 2.7 miles southeast of, 3½ poles east of milepole 437, in culvert bridge B 437, in coping at northwest corner of bridge, 3.05 meters north of center of track, 14 centimeters from face and 18 centimeters from end of coping, 1 meter below grade; bottom of square hole (C. & G. S. b. m. D 2)..... Feet. 5,145.032

PICACHO BUTTE QUADRANGLE.

[Latitude 35°–35° 30′; longitude 112° 30′–113°.]

From point near Chino southeasterly along Atchison, Topeka & Santa Fe Ry. to point near Ashfork.

Chino, 1.7 miles west of, 2½ poles west of mile pole 434, in culvert bridge A 435, in coping at northeast corner of bridge, 4.15 meters north of center of track, 15 centimeters from face and 10 centimeters from end of coping, 1.5 meters below grade; bottom of square hole (C. & G. S. b. m. E 2)... 5,290.882

Chino, 0.5 mile east of, 6 poles west of milepole 432, in culvert bridge A 433, in coping of northeast corner of bridge, 2.7 meters north of center of track, 15 centimeters from face and 10 centimeters from end of coping; bottom of square hole (C. & G. S. b. m. F 2)..... 5,313.591

Seligman, 1.2 miles west of, at west end of steel-trestle bridge A 430, in north end of abutment, 2.1 meters north of center of track, 28 centimeters from face and 30 centimeters from end of coping stone; red metal disk (C. & G. S. b. m. G 2)..... 5,229.921

Seligman, 1.1 miles west of, at west end of steel-trestle bridge A 430, in south end of abutment, 2.15 meters south of center of track, 30 centimeters from face and 31 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. H 2)..... 5,225.534

Seligman, in inclosure surrounding reading room of Atchison, Topeka & Santa Fe Ry., inside hedge, at southwest corner of inclosure, 2.4 meters from corner post, 10.2 meters north of center of track; bottom of square hole in top of stone post, lettered "U. S. B. M." (C. & G. S. b. m. I 2).. 5,241.401

Pan, 0.7 mile west of, 7 poles west of milepost 424, in culvert-arch bridge A 425, in coping at northeast corner of bridge, 3 meters north of center of track, 26 centimeters from face and 51 centimeters from end of coping; copper bolt (C. & G. S. b. m. J 2)..... 5,465.777

Crookton, 1.9 miles south of, 5 poles north of milepole 417, in T-rail bridge A 418, in east end of north abutment, 2.24 meters east of center of track, 20 centimeters from face and 20 centimeters from end of abutment; copper bolt (C. & G. S. b. m. K 2)..... 5,613.496

Gleed, 6 rails west of east switch, 8.8 meters south of center of track, 2 meters below grade; top of iron post (C. & G. S. b. m. L 2)..... 5,427.414

Pineveta, 0.5 mile west of, 2½ poles west of pole 409½, in culvert-arch bridge A 410, in center of coping at north side of bridge, over center pier, 4 meters north of center of track, 38 centimeters from face of coping; red metal disk (C. & G. S. b. m. M 2)..... 5,108.947

Pineveta, 1.4 miles east of, 4 poles west of milepole 407½, in steel-girder bridge A 408, in north end of west abutment, 3.2 meters north of center of track, 43 centimeters from face and 89 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. N 2)..... 5,034.393

Ashfork, 2.7 miles west of, 8½ poles west of milepole 404, in steel-girder bridge A 405, in north end of west abutment, 3.4 meters north of center of track, 27 centimeters from face and 60 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. O 2]..... 5,039.849

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WILLIAMS QUADRANGLE.

[Latitude 35°-35° 30′; longitude 112°-112° 30′.]

From point near Ashfork easterly along Atchison, Topeka & Santa Fe Ry. to point near Chalender.

	Feet.
Ashfork, at ticket office in Harvey House, in north face of building, in seventh column from west end, in north face of column, 47 centimeters from its west edge, 1.38 meters from ground, 6.37 meters south of center of track; red-metal disk (C. & G. S. b. m. P 2)	5,148.933
Holmes, 0.5 miles east of, opposite a point 25.5 meters west of milepole 396, 3.72 meters south of center of track; in rock outcrop at grade; copper bolt (C. & G. S. b. m. Q 2)	5,538.933
Fairview, 0.6 mile east of, 4 poles west of milepole 490½, in steel I-beam bridge A 391, in north end of west abutment, 2.9 meters north of center of track, 22 centimeters from face and 13 centimeters from end of coping; copper bolt (C. & G. S. b. m. R 2)	5,984.529
Fairview, 1.2 miles east of, 2 poles east of milepole 390, in steel-trestle bridge A 390, in north end of west abutment, 1.86 meters north of center of track, 22 centimeters from face and 46 centimeters from end of coping stone; bottom of square hole, marked "U. S." (C. & G. S. b. m. S 2)	6,060.729
Fairview, 2.2 miles east of, 2 poles east of milepole 389, near west end of Johnson Canyon tunnel, in steel-trestle bridge C 389, in north end of west abutment, 2.8 meters north of center of track, 25 centimeters from face and 52 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. T 2)	6,186.704
McLellan, 1.6 miles west of, 11 rails east of milepole 388, in steel-girder bridge D 389, in north end of west abutment, 2.7 meters north of center of track, 35 centimeters from face and 40 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. U 2)	6,307.839
McLellan, 1½ poles east of milepole 386½, in steel-girder bridge A 387, in north end of west abutment, 2.9 meters north of center of track, 31 centimeters from face and 50 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. V 2)	6,423.822
Supai, 0.6 mile west of, 10 poles west of milepole 382, in T-rail bridge B 383, in north end of west abutment, 2.2 meters north of center of track, 30 centimeters from face and 26 centimeters from end of abutment; copper bolt (C. & G. S. b. m. W 2)	6,904.697
Williams, 0.7 mile west of, 8 poles east of milepole 379, in steel-girder bridge B 379, in north end of east abutment, 2 meters north of center of track, 30 centimeters from face and 60 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. X 2)	6,782.329
Williams, in Fray Marcos (Harvey) Hotel, in southeast corner of news stand, facing tracks, 9.3 meters north of center of north track, 1.48 meters from ground, 64 centimeters from corner of building; red-metal disk (C. & G. S. b. m. Y 2)	6,767.182
Williams, 2.4 miles east of, 7 poles east of milepole 376, in T-rail bridge A 376, in north end of west abutment, 2.3 meters north of center of track, 20 centimeters from face and 32 centimeters from end of abutment; copper bolt (C. & G. S. b. m. Z 2)	6,907.447

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FLAGSTAFF QUADRANGLE.

[Latitude 35°–35° 30′; longitude 111° 30′–112°.]

From point near Chalender easterly along Atchison, Topeka & Santa Fe Ry. to point near Cosnino.

	Feet.
Chalender, 0.8 mile south of, 12 poles north of milepole 367, in steel-girder bridge A 368, in west end of south abutment, 2.9 meters west of center of track, 38 centimeters from face and 64 centimeters from end of abutment; bottom of square hole, marked "U. S." (C. & G. S. b. m. A 3)	6,862.483
Maine, 1 mile west of, 7 poles west of milepole 363½, in steel-girder bridge A 364, in north end of west abutment, 3.5 meters north of center of track, 39 centimeters from face and 80 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. B 3)	7,002.139
Bellemont, 1.3 miles east of, 1 pole east of milepole 355, in steel I-beam bridge C 355, in north end of west abutment, 3.1 meters north of center of track, 45 centimeters from face and 93 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. C 3)	7,130.976
Agassiz, 0.8 mile east of, 7 poles west of milepole 346½, in steel I-beam bridge D 347, in north end of east abutment, 3.2 meters north of center of track, 42 centimeters from face and 83 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. D 3)	7,055.058
Flagstaff, in south front of railroad station, beside west door and 38 centimeters from its east edge, 6.3 meters north of center of main track, 1.25 meters from ground; red-metal disk (C. & G. S. b. m. E 3)	6,899.471

CANYON DIABLO QUADRANGLE.

[Latitude 35°–35° 30′; longitude 111°–111° 30′.]

From point near Cosnino easterly along Atchison, Topeka & Santa Fe Ry. to point near Sunshine.

Cosnino, 0.5 mile east of, 42.5 meters southeast of milepole 333, 2.2 meters south of center of track, 20 centimeters from edge of rock outcrop; red-metal disk (C. & G. S. b. m. F 3)	6,451.575
Winona, 2½ poles east of milepole 329, 20.2 meters south of center of track, 19 meters southeast of telegraph pole, in rock outcrop, 0.5 meter above grade; red-metal disk (C. & G. S. b. m. G 3)	6,232.655
Winona, 2.7 miles east of, 9½ poles east of milepole 326, in steel-girder bridge A 326, in north end of west abutment, 2.8 meters north of center of track, 40 centimeters from face and 70 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. H 3)	6,068.243
Angell, 0.7 mile east of, 2½ poles west of milepole 321, 3.04 meters south of center of track, 13.7 meters from telegraph pole, 34 centimeters from edge of rock outcrop; red-metal disk (C. & G. S. b. m. I 3)	5,797.459
Hibbard, 0.5 mile west of, 6 poles east of milepole 318, in steel-trestle bridge A 318, over Canyon Padre, in north end of west abutment, 2.2 meters north of center of track, 26 centimeters from face and 25 centimeters from end of coping stone, at grade; bottom of square hole, lettered "U. S." (C. & G. S. b. m. J 3)	5,583.010
Hibbard, 0.5 mile west of; 10 poles west of milepole 317½, in steel-trestle bridge A 318, over Canyon Padre, in north end of east abutment, 3.3 meters north of center of track, 51 meters from end, 46 centimeters from face of abutment, 1.37 meters below top of rail; red-metal disk (C. & G. S. b. m, K 3)	5,576.990

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Hibbard, 1.3 miles east of, 5 poles west of milepole 316, in T-rail bridge A 317, in south end of west abutment, 2.2 meters south of center of track, 30 centimeters from face and 34 centimeters from end of abutment; copper bolt (C. & G. S. b. m. L 3)..... Feet. 5,485.796

Canyon Diablo, 3.4 miles west of, 2 poles west of milepole 314, in steel I-beam bridge A 315, in south end of west abutment, 2.4 meters south of center of track, 30 centimeters from face and 40 centimeters from end of abutment; bottom of square hole, lettered "U. S." (C. & G. S. b. m. M 3)..... 5,445.189

Canyon Diablo, 0.7 mile west of, 6 poles east of milepole 312½, in steel-trestle bridge A 313 over Canyon Diablo, in north end of west abutment, 2.96 meters north of center of track, 24 centimeters from face and 31 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. N 3)..... 5,430.120

Canyon Diablo, 0.6 mile west of, 7 poles west of milepole 312, in steel-trestle bridge A 313, over Canyon Diablo, in north end of east abutment, 3 meters north of center of track, 30 centimeters from face and 50 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. O 3).. 5,430.189

Sunshine (Meteor post office), 1.9 miles west of, 13.8 meters west of milepole 308, 14.5 meters north of center of track, 2 meters below grade, in rock outcrop; red-metal disk (C. & G. S. b. m. P 3)..... 5,353.992

Sunshine, 1 mile west of, 6 poles west of milepole 307, in steel I-beam bridge A 308, in north end of west abutment, 3.2 meters north of center of track, 43 centimeters from face and 73 centimeters from end of coping stone; bottom of square hole, lettered "U. S." (C. & G. S. b. m. Q 3).... 5,349.035

WINSLOW QUADRANGLE.

[Latitude 35°–35° 30′; longitude 110° 30′–111°.]

From point near Sunshine southeasterly along Atchison, Topeka & Santa Fe Ry. to point near Hobson.

Sunshine, 1.1 miles east of, 2 poles west of milepole 305, in steel I-beam bridge A 306, in north end of west abutment, 3 meters north of center of track, 42 centimeters from face and 62 centimeters from end of coping stone; brass bolt (C. & G. S. b. m. R 3)..... 5,291.102

Sunshine, 3.1 miles east of, 4 poles east of milepole 303, steel-girder bridge B 303, in north end of west abutment, 3.2 meters north of center of track, 35 centimeters from face and 45 centimeters from end of coping stone; bottom of square hole, lettered "U. S." (C. & G. S. b. m. S 3)..... 5,158.930

Dennison, 1.6 miles west of, 29 meters southwest of milepole 300, 13 meters south of center of track, 14.6 meters east of telegraph pole, in rock outcrop; red-metal disk (C. & G. S. b. m. T 3)..... 5,045.843

Dennison 1.4 miles east of, 2½ poles west of milepole 297, in steel I-beam bridge A 298, in north end of west abutment, 3.4 meters north of center of track, 38 centimeters from face and 75 centimeters from end of coping stone; brass bolt (C. & G. S. b. m. U 3)..... 5,011.958

Winslow, 4.7 miles west of, 1 pole east of milepole 290½, in steel I-beam bridge A 291, in south end of west abutment, 3 meters south of center of track, 30 centimeters from face and 40 centimeters from end of coping stone; bottom of square hole, marked "U. S." (C. & G. S. b. m. V 3).... 4,875.680

Winslow, 2.2 miles west of, 2 poles west of milepole 288, in steel I-beam bridge A 289, in north end of west abutment, 3.4 meters north of center of track, 40 centimeters from face and 65 centimeters from end of coping stone; brass bolt (C. & G. S. b. m. W 3)..... 4,917.500

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	Feet.
Winslow, 7 poles east of milepole 284, in yard of railroad hospital, in northeast corner of yard, 4.5 meters south of center of south track, 1 meter from corner post of fence; bottom of hole in top of stone post, marked "U. S. B. M." reported moved, new location being 11.79 meters south of that described here	4,855.190
Winslow, 2.9 miles east of, 3¼ poles east of milepole 283, in steel-truss bridge A 283 over Little Colorado River, in north end of west abutment, 2.1 meters north of center of track, 46 centimeters from face and 1.2 meters from end of coping stone; red-metal disk (C. & G. S. b. m. Y 3)	4,862.333
Winslow, 3.1 miles east of, 8¼ poles west of milepole 282¼, in steel-truss bridge A 283, over Little Colorado River, in north end of east abutment, 2.15 meters north of center of track, 53 centimeters from face and 1.14 meters from end of coping stone; brass bolt (C. & G. S. b. m. Z 3)	4,862.129

SUNSET KROLL QUADRANGLE.

[Latitude 34° 30′–35°; longitude 110°–111°.]

From point near Hobson easterly along Atchison, Topeka & Santa Fe Ry. to point near Manila.

Hobson, 3 miles south of, 9¼ poles north of milepole 277, in foundation of former water tank, in northwest pedestal of foundation, 7.25 meters east of center of track, 40 centimeters from east face and 43 centimeters from north face of pedestal, 1 meter below grade; copper bolt (C. & G. S. b. m. A 4)	4,888.766
Hardy, 2.9 miles east of, opposite milepole 272, 31.1 meters south of center of track, 0.9 meter south of right-of-way fence, 1 meter below grade; top of iron post (C. & G. S. b. m. B 4)	4,926.496

ST. JOSEPH QUADRANGLE.

[Latitude 34° 30′–35°; longitude 110°–110° 30′.]

From point near Manila easterly along Atchison, Topeka & Santa Fe Ry. to point near Aztec.

Manila, 0.5 mile east of, one-half pole east of milepole 268¼, in steel-girder bridge A 269, in north end of west abutment, 3.2 meters north of center track, 30 centimeters from face and 50 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. C 4)	4,959.515
Joseph City (St. Joseph post office), 0.9 mile west of, 6 poles east of milepole 264¼, in steel-girder bridge A 265, in north end of west abutment, 3.2 meters north of center of track, 40 centimeters from face and 55 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. D 4)	4,991.952
Joseph City, 1.4 mile east of, 11.4 meters northwest of milepole 262, 22.1 meters north of center of track, 1.5 meters below grade; top of iron post (C. & G. S. b. m. E 4)	5,011.282
Penzance, 0.5 mile west of, 2 poles west of milepole 259, in stone-arch bridge A 260, in north end of west abutment, in first stone below coping, 4 meters north of center of track, 38 centimeters from face and 25 centimeters from end of abutment, 1.5 meters below grade; copper bolt (C. & G. S. b. m. F 4)	5,040.062
Penzance, 0.6 mile east of, 11.5 meters east of second pole east of milepole 258, 14.7 meters north of center of track, 1.5 meters below grade, in rock outcrop; red-metal disk (C. & G. S. b. m. G 4)	5,048.097

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	Feet.
Holbrook, 2.7 miles west of, 8 poles east of milepole 256, in steel-girder bridge A 256, in north end of west abutment, in first stone below coping; 2.82 meters north of center of track, 32 centimeters from face and 57 centimeters from end of abutment; copper bolt (C. & G. S. b. m. H 4)	5,060.035
Holbrook, 3 poles west of milepole 253, in railroad station in northwest corner, facing track, 54 centimeters from corner of building, 1.56 meters from ground, 6.24 meters south of center of track; red-metal disk (C. & G. S. b. m. I 4)	5,083.408
Holbrook, 3 miles east of, 41.3 meters south of milepole 250, 8 meters southeast of center of track, 1 meter below grade, in rock outcrop; red-metal disk (C. & G. S. b. m. J 4)	5,105.888
Aztec, 1.5 miles west of, 16.5 meters north of milepole 247, 28.6 meters north of center of track, 0.9 meter south of right of way fence, 1.5 meters below grade; top of iron post (C. & G. S. b. m. K 4)	5,127.949

ADAMANA QUADRANGLE.

[Latitude 34° 30′–35°; longitude 109° 30′–110°.]

From point near Aztec easterly along Atchison, Topeka & Santa Fe Ry. to point near Pinta.

Aztec, 3.2 miles east of, 4½ poles east of milepole 242½, in steel-girder bridge A 243, over Rio Puerco, in north end of west abutment, 2.9 meters north of center of track, 28 centimeters from face and 70 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. L 4)	5,188.736
Aztec, 4 miles east of, 5½ poles west of milepole 241½, in culvert bridge B 242, in center of south coping, 3.6 meters south of center of track, 20 centimeters from face and 1.2 meters from east end of coping; bottom of square hole marked "U. S." (C. & G. S. b. m. M 4)	5,195.843
Carrizo, 1 mile west of, 3 poles east of milepole 239½, in steel-girder bridge A 240, over Rio Puerco, in north end of west abutment, 3.1 meters north of center of track, 32 centimeters from face and 56 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. N 4)	5,219.649
Adamana, 1.7 miles west of, 3 poles east of milepole 234½, in culvert bridge A 235, in center of south coping, 3.7 meters south of center of track, 31 centimeters from face and 1.25 meters from east end of coping; copper bolt (C. & G. S. b. m. O 4)	5,274.888
Adamana, 5 poles west of milepole 232½, opposite railroad station, 29.8 meters south of center of track, 0.9 meter north of right of way fence; bottom of square hole in top of stone post, lettered "U. S. B. M." (C. & G. S. b. m. P 4)	5,297.483
Adamana, 2 miles east of, 11 poles east of milepole 231, in steel-girder bridge A 231, in north end of west abutment, 3.1 meters north of center of track, 33 centimeters from face and 50 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. Q 4)	5,334.976

PINTO QUADRANGLE.

[Latitude 35°–35° 30′; longitude 109° 30′–110°.]

From point near Pinto northeasterly along Atchison, Topeka & Santa Fe Ry. to point near Chambers.

Pinto, 2.7 miles southwest of, 5 meters north of point opposite milepole 222, 20.5 meters north of center of track, 1.5 meters below grade; top of iron post (C. & G. S. b. m. R 4)	5,462.502

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Pinto, 1.7 miles west of, 30 meters east of milepole 221, in culvert bridge B 221, in center of north coping, 3.8 meters north of center of track, 7 centimeters from face and 1.6 meters from east end of coping; bottom of square hole, marked "U. S." (C. & G. S. b. m. S 4) ..... Feet. 5,487.329

Pinto, 1 mile east of, 12½ poles west of milepole 218, in stone-arch bridge A 219, in coping of northwest corner of bridge, 3.9 meters north of center of track, 19 centimeters from face and 40 centimeters from end of coping, 1.5 meters below grade; copper bolt (C. & G. S. b. m. T 4) 5,530.570

Pinto, 3 miles east of, 10 poles east of milepole 216½, in steel-girder bridge A 217, over Rio Puerco, in north end of west abutment, 2.93 meters north of center of track, 20 centimeters from face and 60 centimeters from end of abutment; copper bolt (C. & G. S. b. m. U 4) 5,583.775

Navajo, 3.3 miles west of, 0.5 pole east of milepole 216, in stone-arch bridge A 216, in coping at southwest corner of bridge, 4 meters south of center of track, 15 centimeters from face and 10 centimeters from end of coping, 1 meter below grade; copper bolt (C. & G. S. b. m. V 4) 5,584.798

Navajo, 2 miles west of, 9 poles east of milepole 215, in steel-girder bridge A 215, over Rio Puerco, in north end of west abutment, 3.3 meters north of center of track, 30 centimeters from face and 35 centimeters from end of coping stone; bottom of square hole, marked "U. S." (C. & G. S. b. m. W 4) 5,605.241

Navajo, 2.8 miles east of, 60 meters east of milepole 210, in steel-girder bridge A 210, over Rio Puerco, in north end of west abutment, 2.8 meters north of center of track, 30 centimeters from face and 55 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. X 4) 5,680.025

HOUCK QUADRANGLE.

[Latitude 35°–35° 30′; longitude 109°–109° 30′.]

From point near Chambers northeasterly along Atchison, Topeka & Santa Fe Ry. to point near Lupton.

Chambers, 1.2 miles west of, 4 poles west of milepole 207, in steel-girder bridge A 208, in north end of west abutment, 3 meters north of center of track, 30 centimeters from face and 40 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. Y 4) 5,724.903

Chambers, 12 poles east of milepole 206, 23.5 meters east of railroad station, 14.6 meters south of center of track, 1.5 meters below grade; top of iron post (C. & G. S. b. m. Z 4) 5,750.038

Sanders, 1 mile west of, 30 meters west of milepole 201, in steel I-beam bridge A 202, in north end of west abutment, 2.6 meters north of center of track, 34 centimeters from face and 80 centimeters from end of coping stone; copper bolt (C. & G. S. b. m. A 5) 5,827.547

Sanders, 2½ miles east of milepole 200, in stone-arch bridge B 200, in center of south coping, 8.4 meters south of center of track, 35 centimeters from face and 3.03 meters from west end of coping; copper bolt (C. & G. S. b. m. B 5) 5,830.494

Sanders, 1.2 miles east of, 6½ poles west of milepole 198, in stone-arch bridge A 199, in center of north coping, 4 meters north of center of track, 28 centimeters from face and 5 meters from east end of coping, 1 meter below grade; bottom of square hole, marked "U. S." (C. & G. S. b. m. C 5). 5,856.090

Houck, 1.7 miles west of, 5½ poles east of milepole 194, in steel-girder bridge B 194, in north end of east abutment, 2.7 meters north of center of track, 45 centimeters from face and 1.1 meters from end of coping stone; bottom of square hole, marked "U. S." (C. & G. S. b. m. D 5) 5,933.171

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	Feet.
Houck, 1 mile west of, 6 poles west of milepole 193, in steel-truss bridge A 194, over Rio Puerco, in north end of west abutment, 2.5 meters north of center of track, 30 centimeters from face and 60 centimeters from end of coping stone; probably square hole or red-metal disk, may be a copper bolt also (C. & G. S. b. m. E 5)	5,943.486
Houck, 12 poles west of milepole 192, in steel-truss bridge A 193 over Rio Puerco, in south end of west abutment, 3 meters south of center of track, 35 centimeters from face and 45 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. F 5)	5,957.750
Allentown, 2.1 miles east of, 5 poles west of milepole 185, in T-rail bridge A 186, in north end of west abutment, 2.1 meters north of center of track, 30 centimeters from face and 40 centimeters from end of abutment; copper bolt (C. & G. S. b. m. G 5)	6,083.373
Lupton, 1.4 miles west of, 2 poles east of milepole 182, in steel-girder bridge B 182, in north end of west abutment, 3.3 meters north of center of track, 43 centimeters from face and 84 centimeters from end of coping stone; red-metal disk (C. & G. S. b. m. H 5)	6,137.737
Lupton, 0.3 mile west of, 3 poles east of milepole 181, in steel-girder bridge A 181, in north end of west abutment, 2.9 meters north of center of track, 43 centimeters from face and 52 centimeters from end of coping stone; bottom of square hole, marked "U. S." (C. & G. S. b. m. I 5)	6,153.071

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APPENDIX B.

SECONDARY ELEVATIONS.

Secondary elevations from records and topographic maps of the United States Geological Survey, including altitudes of well-known summits and other useful elevations, are given below. These elevations are approximate only and should not be used for accurate work.

Locality.	Quadrangle.	County.	Elevation.
Adams Mesa	Fort McDowell	Maricopa	2,515
Agassiz Peak	Flagstaff	Coconino	12,340
Agua Caliente Hill	Tucson	Pima	5,350
Ajax Hill	Benson	Cochise	5,327
Ajax Hill	Tombstone	do	5,315
Antelope Peak	Congress	Yavapai	5,786
Apache Peak (Stonewhet triangulation station)	Benson	Cochise	7,684
Apollo Temple	Vishnu	Coconino	6,261
Awatubi Crest	do	do	5,398
Baker Butte	Verde	Yavapai	8,182
Bald Hill triangulation station	Jerome	do	6,161
Baldy Mountain	Morenci	Greenlee	6,415
Bangs Mountain	Mount Trumbull	Mohave	7,500
Beale Point	Shinumo	Coconino	6,695
Black Knob	Bisbee	Cochise	5,824
Black Mesa	Fort McDowell	Maricopa	3,125
Black Mountain triangulation station	Winkelman	Pinal	5,583
Black Peak triangulation station	Parker	Yuma	1,656
Do	Globe	Gila	4,780
Boundary Cone triangulation station	Needles	Mohave	3,429
Bradshaw Mountains	Bradshaw Mountains	Yavapai	6,839
Brady Butte	do	do	6,390
Brahma Temple	Bright Angel	Coconino	7,554
Brandenburg Mountain	Winkelman	Pinal	4,367
Brigham Peak	Morenci	Greenlee	7,070
Bright Angel Point	Bright Angel	Coconino	8,153
Buddha Temple	do	do	7,218
Bullard Peak	Morenci	Greenlee	7,862
Camelsback Mountain triangulation station	Camelsback	Maricopa	2,700
Cape Butte	Bright Angel	Coconino	4,540
Cape Final triangulation station	Vishnu	do	7,919
Cape Royal	do	do	7,876
Cape Solitude	do	do	6,157
Cardenas Butte	do	do	6,264
Carr Peak	Hereford	Cochise	9,214
Carrizo Butte	Petrified Forest	Navajo	5,435
Chevlon Butte	Holbrook	Yavapai	6,935
Colorado River; lowest point in the State yet determined.	Yuma	Yuma	100
Comet Peak	Florence	Pinal	2,694
Comstock Hill	Tombstone	Cochise	4,580
Confucius Temple	Bright Angel	Coconino	7,128
Copper King Mountain	Clifton	Graham	6,826
Copper Mountain	Bradshaw Mountains	Yavapai	5,018
Coronado Butte	Vishnu	Coconino	7,120
Crabtree Butte	Roosevelt	Maricopa	4,800
Crater Hill	Flagstaff	Coconino	8,300
Cross Mountain	Diamond Creek	Yavapai	6,625
Dana Butte	Bright Angel	Coconino	5,025
Dellenbaugh Mountain	Mount Trumbull	Mohave	6,750
Deva Temple	Bright Angel	Coconino	7,344
Dragon Head	do	do	7,728
Dutton Point triangulation station	Shinumo	do	7,555
El Capitan Mountain (Pioneer triangulation station).	Ray	Gila	6,564
Elaine Castle	Shinumo	Coconino	7,425
Elden Mountain	Flagstaff	do	9,280
Elliott Mountain	Bradshaw Mountains	Yavapai	6,993
Emma Mountain	Mount Trumbull	Mohave	7,700

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Locality.	Quadrangle.	County.	Elevation.
Escalante Butte	Vishnu	Coconino	6,532
Evans Mountain	Tucson	Pima	5,580
Fagan Mountain triangulation station	Patagonia	do	6,175
Fossil Mountain	Shinumo	Coconino	6,730
Four Peaks	Roosevelt	Gila-Maricopa	7,645
Freya Castle	Coconino	Vishnu	7,296
Government Hill	Flagstaff	Coconino	8,420
Government Mountain	do	do	8,347
Granite Knob	Sacaton	Pinal	1,534
Granite Peak	Benson	Cochise	7,387
Grassy Hill	Bisbee	do	6,580
Grassy Mountain	Morenci	Greenlee	6,334
Grayback triangulation station	Florence	Pinal	3,558
Green Peak	St. Johns	Apache	10,115
Greenback Butte	Roosevelt	Gila	5,555
Guinevere Castle	Shinumo	Coconino	7,255
Gunther Castle	Vishnu	do	7,199
Holy Grail Temple	Shinumo	do	6,710
Holy Joe Peak	Winkelman	Pinal	6,145
Hopi Point	Bright Angel	Coconino	7,071
Huachuca Mountains	Benson	Cochise	7,604
Huachuca Peak triangulation station	Hereford	do	8,406
Hualpai Peak	Diamond Creek	Mohave	8,266
Huethawali Mountain	Shinumo	Coconino	6,280
Hutton Peak	Globe	Pinal	5,608
Iron Mountain	Florence	do	6,020
Isis Temple	Bright Angel	Coconino	7,028
Ives Point	Shinumo	do	6,600
Joes Hill	Bradshaw Mountains	Yavapai	4,030
Josephine Peak triangulation station	Patagonia	Santa Cruz	8,435
Kellogg Mountain triangulation station	Tucson	Pima	8,385
Kendrick Peak	Flagstaff	Coconino	10,418
King Arthur Castle	Shinumo	do	7,315
Kings Crown Peak triangulation station	Florence	Pinal	5,530
Krishna Shrine	Vishnu	Coconino	6,181
Kwagunt Butte	do	do	6,390
Lava Butte	do	do	4,131
Lemon Mountain	Tucson	Pima	9,150
Logan Mountain	Mount Trumbull	Mojave	7,700
Lookout Mountain	Roosevelt	Gila	6,508
Lousley Hill triangulation station	Fort McDowell	Maricopa	2,050
Lukachukai Mountain	Canyon de Chelly	Apache	9,430
McDowell triangulation station	Fort McDowell	Maricopa	2,828
Malgosa Crest	Vishnu	Coconino	5,585
Maricopa Point	Bright Angel	do	7,050
Mami Temple	do	do	7,192
Maple Peak	Morenci	Greenlee	8,302
Marshall Lake, water surface	Flagstaff	Coconino	7,133
Marsh Butte	Bright Angel	do	4,730
Maverick Hill	Morenci	Greenlee	7,457
Mays Hill	Benson	Cochise	5,144
Mays Hill	Tombstone	do	5,132
Mazatzal Peak	Verde	Yavapai	8,065
Mesa Keys	Jerome	do	5,955
Mescalero Point	Shinumo	Coconino	6,635
Mica Mountain	Tucson	Pima	8,590
Military Hill	Tombstone	Cochise	5,301
Miller Peak	Hereford	do	9,445
Mineral Butte	Sacaton	Pinal	1,910
Mingus Mountain triangulation station	Jerome	Yavapai	7,720
Moran Point	Vishnu	Coconino	7,157
Mulligan Peak	Clifton	Graham	5,615
Mustang Mountain triangulation station	Benson	Pima	6,315
Needle Mountain	Globe	Gila	5,050
Newberry Butte	Vishnu	Coconino	5,085
New River Mountains triangulation station	Bradshaw Mountains	Yavapai	5,845
Nic doit soe Peak	Echo Cliffs	Coconino	6,648
North Butte	Florence	Pinal	2,980
Old Baldy	Ray	Gila	5,520
Old Baldy triangulation station	Patagonia	Santa Cruz	9,432
O'Leary Peak	Flagstaff	Coconino	8,925
Ord Mountain	Roosevelt	Gila-Maricopa	7,155
Osiris Temple	Bright Angel	Coconino	6,637
Oza Butte	do	do	8,066

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Locality.	Quadrangle.	County.	Elevation.
Pastora Peak	Canyon de Chelly	Apache	9,420
Pat Mountain	Morenci	Greenlee	6,562
Peacock Peak	Diamond Creek	Mohave	6,268
Picketpost Mountain	Florence	Pinal	4,370
Pinal Peak	Globe	Gila	7,850
Pinnacle Mountain triangulation station	Camelsback	Maricopa	3,170
Pioneer Mountain	Ray	Gila	5,982
Piute Point	Shinumo	Coconino	6,632
Point Sublime triangulation station	do	do	7,464
Rama Shrine	Vishnu	do	6,411
Red Hill	Flagstaff	do	7,750
Red Mountain	Morenci	Greenlee	8,174
Red Mountain triangulation station	Patagonia	Santa Cruz	6,350
Reno Pass	Roosevelt	Maricopa-Gila	4,724
Rice Peak triangulation station	Winkelman	Pima, Pinal	7,584
Rincon Peak triangulation station	Tucson	Pima	8,465
Rogers Lake, water surface	Flagstaff	Coconino	7,244
Roof Butte	Canyon de Chelly	Apache	9,575
Roosevelt Reservoir, water surface	Roosevelt	Gila	2,123
Rose Peak	Morenci	Greenlee	8,787
Saddle Mountain triangulation station	Winkelman	Pinal	4,233
San Cayetano Mountain triangulation station	Patagonia	Santa Cruz	5,990
San Francisco Peak triangulation station; highest point in the State yet determined.	Flagstaff	Coconino	12,611
Santon Mountain triangulation station	Sacaton	Pinal	3,093
Scott Mountain	Ray	do	5,115
Shannon Mountain triangulation station	Clifton	Graham	5,626
Sheba Temple	Vishnu	Coconino	4,993
Sheldon Mountain triangulation station	Camelsback	Maricopa	2,135
Siegfried Pyre	Vishnu	Coconino	7,926
Signal Hill triangulation station	Shinumo	do	6,780
Skeleton Mesa	Marsh Pass	Apache	7,790
Slate Mountain	Flagstaff	Coconino	8,209
Sleeping Beauty Peak	Globe	Gila	4,890
Solomon Temple	Vishnu	Coconino	5,103
South Butte	Florence	Pinal	2,815
Spruce Mountain	Bradshaw Mountains	Yavapai	7,690
Stewart Mountain triangulation station	Fort McDowell	Maricopa	2,990
Stonewhet triangulation station (Apache Peak)	Benson	Cochise	7,684
Sublime Point triangulation station	Shinumo	Coconino	7,464
Sugarloaf Mountain triangulation station	Fort McDowell	Maricopa	2,880
Sunset Knoll	Holbrook	Yavapai	6,432
Sunset Peak triangulation station	Morenci	Greenlee	6,963
Superstition Mountain	Florence	Pinal	5,030
Tam o'Shanter Peak	Ray	Gila	4,639
The Dome	Tombstone	Cochise	5,097
The Tabernacle	Vishnu	Coconino	4,829
Telegraph Pass	Phoenix	Maricopa	1,980
Thompson Peak triangulation station	Camelsback	do	3,980
Thor Temple	Vishnu	Coconino	6,752
Tiyo Point triangulation station	Bright Angel	do	7,765
Three Castles	Vishnu	do	7,344
Toatindahaska Mesa	Canyon de Chelly	Apache	7,310
Tornado Peak (Dudleysville Butte triangulation station).	Ray	Gila	4,483
Tower of Ra	Bright Angel	Coconino	6,079
Tower of Set	do	do	5,997
Tritle Mountain	Bradshaw Mountains	Yavapai	7,793
Troy Mountain (Kelvin triangulation station)	Ray	Pinal	4,970
Trumbull Mountain	Mount Trumbull	Mohave	7,700
Turkey Mountain	Morenci	Greenlee	7,300
Twin Buttes	Petrified Forest	Navajo	5,675
			5,685
Union Mountain	Bradshaw Mountains	Yavapai	7,971
Usery Mountain	Desert Well	Maricopa	2,970
Venus Temple	Vishnu	Coconino	6,286
Vishnu Temple	do	do	7,537
Volunteer Mountain	Flagstaff	do	8,057
Wades Butte	Congress	Yavapai	5,330
Walker Butte	Sacaton	Pinal	1,988
Weavers Needle	Florence	do	4,535
Woodruff Butte	Holbrook	Apache	5,616
Woody Mountain	Flagstaff	Coconino	8,054
Wrong Mountain	Tucson	Pima	7,767
Zoraster Temple	Bright Angel	Coconino	7,136
Zuni Point	Vishnu	do	7,282

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